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THE TRANSACTIONS

OF THE

EDINBURGH OBSTETRICAL SOCIETY

THE TRANSACTIONS

OF THE

EDINBURGH OBSTETRICAL SOCIETY.

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E. H. B.

PREFACE.

THIS, the twenty-ninth volume of the Society's Transactions, contains a record of its proceedings during the Session 1903–1904.

In it, as in former volumes, the views brought forward in the Papers are to be considered as those of the writers themselves, and not as those of the Society as a body.

THE EDITOR.

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	Allan Cuthbertson Sym, M.D., C.M.,	1885
100	Frederick J. Underhill, F.R.C.S. Ed., L.R.C.P. Ed., *British Columbia*,	1885
	William Gayton, M.D., M.R.C.P.L., M.R.C.S. Eng., *London*,	1885
	*Alexander Matthew F.R.C.S. Ed., *Corstorphine*	1885
	Gustave Michael, M.B., C.M., *London*,	1885
	*James Haig Ferguson, M.D., F.R.C.P. Ed., M.R.C.S. Eng.,	1885

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105	John Edward Gemmell, M.B., C.M., *Liverpool*,	1885
	Robert Stewart, M.B., C.M.,	1885
	Surgeon-Captain Robert Charles Macwatt, M.B., B.Sc., C.M., 7th Bengal Cavalry, *Bombay*	1885
	*E. H. Lawrence Oliphant, M.D., C.M., *Glasgow*,	1885
	James Hogarth Pringle, M.B., F.R.C.S. Eng., *Glasgow*,	1886
110	Robert Swan Aitchison, M.D., F.R.C.P. Ed.,	1886
	John Walton Hamp, L.F.P. & S. Glasg., L.S.A., *Wolverhampton*,	1886
	John Dickinson Leigh, M.D., F.R.C.S. Ed., *Bishop-Auckland*,	1886
	James Auriol Armitage, M.D., C.M., *Wolverhampton*,	1886
	William Henry Miller, M.D., F.R.C.P. Ed.,	1886
115	John M'Call, L.R.C.P. Ed.,	1886
	Thomas Wood, M.D., C.M.,	1886
	Hugh M'Callum, L.R.C.P. & S. Ed., *Kinloch-Rannoch*,	1887
	Nutting Stuart Fraser, M.B., M.R.C.S. Eng., *St John's, Newfoundland*,	1887
	Augustus Alexander Matheson, M.D., F.R.C.P. Ed.,	1887
120	Robert Mackenzie, M.D., C.M., *Nairn*,	1887
	Thomas Jackson Thyne, M.B., F.R.C.P. Ed.,	1887
	John St Clair Boyd, M.D., M.Ch., *Belfast*,	1887
	Ernest T. Roberton, M.D., M.R.C.S. Eng., *New Zealand*,	1887
	*Samuel Sloan, M.D., F.F.P. & S. Glasg., *Glasgow*,	1887
125	James Wm. Fox, L.R.C.P. & S. Ed., *Southampton*,	1887
	John Frederick Sturrock, M.B., C.M., *Broughty-Ferry*,	1887
	Alexander Primrose, M.B., M.R.C.S. Eng., *Toronto, Canada*,	1887
	Arthur Perigal, M.D., M.R.C.S. Eng., *New Barnet, Herts*,	1887
	James Aitken Clark, M.B., C.M.,	1887
130	Edward Carmichael, M.D., F.R.C.P. Ed.,	1887
	Percival Humble Watson, M.R.C.S. Eng., L.R.C.P. Ed., *Newcastle-on-Tyne*,	1887
	Charles Clark Teacher, M.B., C.M.,	1887
	Robert Inch, M.B., C.M., *Gorebridge*,	1887
	Ellis Thomas Davies, M.D., M.R.C.S. Eng., *Liverpool*,	1887
135	John Orr, M.B., C.M., *Eccles, Lancashire*,	1887
	*George Owen Carr Mackness, M.D., C.M., *Broughty-Ferry*.	1887
	Francis Joseph Baildon, M.B., C.M., *Southport*,	1887
	Surgeon-Lt. Ralph H. Maddox, M.B., M.R.C.S. Eng., I.M.S., *Bengal*,	1887
	James Williamson Martin, M.D., F.R.C.P. Ed., *Dumfries*,	1887
140	James Andrew Blair, M.D., C.M., D.Sc., *Newcastle-on-Tyne*,	1887
	*John Thomson, M.D., F.R.C.P. Ed.,	1887
	Robert Kirk, M.D., F.R.C.S. Ed., *Bathgate*,	1887
	*William Fraser Wright, M.B., C.M., *Leith*,	1887
	Alexander Bruce, M.D., F.R.C.P. Ed.,	1887
145	Richard Joseph Tristan, L.R.C.P. & S. Ed., *Retford, Notts*,	1887
	Robert Henry Blaikie, M.D., F.R.C.S. Ed.,	1888
	James Hutcheson, M.D., F.R.C.S. Ed.,	1888
	A. A. Jervis Pereira, M.D., *Delagoa Bay*,	1888
	Christopher Martin, M.B., F.R.C.S. Eng., *Birmingham*,	1888
150	John George Havelock, M.D., C.M., *Montrose*,	1888
	John Pirie, M.B., C.M.,	1888
	James Gibson Graham, M.B., C.M., *Glasgow*,	1888
	Robert Adams Brewis, M.D., C.M., *Dursley*,	1888
	John Allison, M.D., C.M., *Kettering, Northampton*,	1888
155	Archibald Cowan Guthrie, M.B., C.M.,	1888
	Samuel Beatty, M.B., C.M., *Pitlochry*,	1888
	Professor James Chalmers Cameron, M.D., *Montreal*,	1888
	Albert Edward Morison, M.B., F.R.C.S. Ed., M.R.C.S. Eng., *West Hartlepool*,	1888
	George H. Temple, M.B., C.M., *Weston-super-Mare*,	1888
160	Norman L. Boxill, M.B., C.M., *Barbados*,	1888

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	John Hunter Helm, M.B., C.M., *Ratho*,	1888
	George Scott MacGregor, M.D., C.M., *Glasgow*,	1888
	William Sneddon, M.B., C.M., *Cupar-Fife*,	1888
	Thomas Watts Eden, M.B., C.M., *London*,	1888
165	William Fordyce, M.D., F.R.C.P. Ed.,	1888
	Charles E. Harvey, M.B., M.R.C.S. Eng., *Sav-la-Mar, Jamaica*,	1889
	Alexander Lang Murray, L.R.C.P. & S. Ed., *Australia*,	1889
	*George Pirrie Boddie, M.B., C.M.,	1889
	James F. W. Ross, M.D., *Toronto, Canada*,	1889
170	J. Stuart Nairne, F.R.C.S. Ed., F.F.P. & S. Glasg., *Glasgow*,	1889
	James S. Fox, M.B., M.R.C.S. Eng., *St Helens*,	1889
	S. M'Murtry, M.D., *Louisville, Kentucky, U.S.A.*,	1889
	Hugh Jamieson, M.D., C.M.,	1889
	Thomas Wm. Nassau Greene, L.R.C.P. Ed., L.R.C.S.I., *Dublin*,	1889
175	Prof. John Clarence Webster, M.D., F.R.C.P. Ed., *Chicago*,	1889
	*William George Aitchison Robertson, M.D., F.R.C.P. Ed.,	1889
	William Basil Orr, M.D., C.M.,	1889
	*Edward Farr Armour, M.B., C.M.,	1889
	George Wilkinson, M.D., C.M., *Liverpool*,	1889
180	*James Lamond Lackie, M.D., F.R.C.P. Ed.,	1889
	James Wilson, M.B., C.M.,	1889
	Archibald Maclean, M.D., C.M., *Kilmarnock*,	1890
	Frederick William Lyle, M.D., C.M., *London*,	1890
	Thomas Dobson Poole, M.D., C.M., *St Anne's-on-the-Sea*,	1890
185	Charles Newberry Cobbett, M.D., C.M., *London*,	1890
	Alexander William Gordon Price, M.B., C.M.,	1890
	Hugh Shapter Robinson, M.R.C.S. Eng., L.R.C.P. Ed., *London*,	1890
	*George Matheson Cullen, M.D., C.M.,	1890
	Frederick Albert L. Lockhart, M.B., C.M., *Montreal, Canada*,	1890
190	Edmund Frederick Tanney Price, M.B., C.M.,	1890
	Ernest Theophilus Roberts, M.D., C.M., *Keighley*,	1890
	Owen Foulkes Evans, M.D., C.M., *Liverpool*,	1890
	James Duncan Farquharson, M.B., C.M., *Newcastle-on-Tyne*,	1890
	Harvey Littlejohn, M.B., F.R.C.S. Ed.,	1890
195	Carstairs Cumming Douglas, M.D., F.F.P. & S. Glasg., *Glasgow*	1890
	Robert Wise, M.D., C.M., *London*,	1890
	William Russell, M.D., F.R.C.P. Ed.,	1890
	Alexander Scott Duncan, M.B., C.M., *London*,	1890
	Prof. William Keiller, F.R.C.S. Ed., *Galveston, Texas, U.S.A.*,	1890
200	*Michael Dewar, M.D., C.M.,	1891
	Gains T. Smith, M.D., *Moncton, New Brunswick*,	1891
	John Hugh Alexander Laing, M.B., C.M.,	1891
	Robert Thin, M.B., F.R.C.P. Ed.,	1891
	Alexander Henry Vassie, M.B., C.M., *London*,	1891
205	James Harvey, M.D., C.M.,	1891
	Alexander Henderson, M.B., C.M.,	1891
	James Smith, M.D., C.M.,	1891
	George Balfour Marshall, M.D., C.M., *Glasgow*,	1891
	William Booth, F.R.C.S. Ed.,	1891
210	Richard T. Yoe, M.D., *Louisville, Kentucky, U.S.A.*,	1891
	Alexander Bruce Giles, M.D., C.M.,	1891
	Hamilton Graham Langwill, M.D., F.R.C.P. Ed., *Leith*,	1891
	Herbert Ernest Lee, M.B., C.M., *Australia*,	1891
	Charles Martin, M.B., C.M., *Newton Abbot*,	1892
215	William Murray Cairns, M.B., C.M., *Liverpool*,	1892
	Robert Dundas Helm, M.D., C.M., *Carlisle*,	1892
	William Wood, M.B., C.M.,	1892
	James Thomas Moore Giffen, F.R.C.S. Ed., *Chester*,	1892
	Frank Dendle, M.B., D.P.H., *Isleworth*,	1892
220	Frederick Thomas Anderson, M.D., F.R.C.S. Ed., *Branmton*,	1892

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	Simson Carstairs Fowler, M.B., C.M., *Juniper Green*,	1892
	Prof. John Alexander Campbell Kynoch, M.B., F.R.C.P. Ed., *Dundee*,	1892
	Alexander Brown Ritchie, M.B., C.M., *Hulme, Manchester*,	1892
	Walter John Shaw, M.B., C.M., *Cockburnspath*,	1892
225	Robert Stirling, M.D., C.M., *Perth*,	1892
	William Henry Vickery, F.R.C.S. Eng., L.R.C.P. Lond., *Newcastle-on-Tyne*,	1892
	William Ramsay Smith, M.B., C.M., *Australia*,	1892
	A. Watson Munro, M.D., *Sydney, Australia*,	1892
	Charles Frederick Ponder, M.B., C.M., *Tasmania*,	1892
230	John Tod, M.B., C.M., *Leith*,	1892
	George Thomas C. Adams, L.R.C.P. & S. Ed., *Melbourne, Aust.*,	1892
	George Henry Walter Smith, M.D., C.M., *Sydney, Australia*,	1892
	Charles Croomhall Easterbrook, M.D., C.M., *Ayr*,	1892
	Walter Petrie Simpson, M.B., C.M., *Bathgate*,	1892
235	*James Ernest Moorhouse, M.D., C.M., *Stirling*,	1892
	D. W. Johnston, F.R.C.S. Ed., *Johannesburg, South Africa*,	1892
	David George Davidson, M.B., C.M.,	1892
	Allen Thomson Sloan, M.D., C.M.,	1893
	Robert Balfour Graham, F.R.C.S. Ed., *Leven, Fife*,	1893
240	Albert Frederic Rosa, M.D., C.M.,	1893
	George Benjamin Mitchell, M.B., C.M., *Whitby*,	1893
	Henry Robins, M.D., *Jamaica*,	1893
	Linn J. Schofield, M.D., *Warrensburg, Mo., U.S.A.*,	1893
	David Milligan, M.B., C.M.,	1893
245	George Morton Wilcockson, L.R.C.P. & S. Ed., *Reading*,	1893
	John MacRae, M.D., C.M., *Murrayfield*,	1893
	Ernest Switzer Forde, L.R.C.P. & S. Ed., *Dalry, Galloway*,	1893
	George Wade, M.D., C.M., *Melrose*,	1893
	Philip Grierson Borrowman, M.D., C.M., *Crieff*,	1893
250	William Herbert Gregory, M.D., C.M., *Beverley, Yorks*	1893
	James Gibson Cattanach, M.B., F.R.C.P. Ed.,	1893
	Alexander Maitland Easterbrook, M.B., C.M., *Gorebridge*,	1893
	Robert William Roberts, L.R.C.P. & S. Ed., *South Wales*,	1894
	Claude Buchanan Ker, M.D., F.R.C.P. Ed.,	1894
255	John Malcolm Farquharson, M.B., C.M.,	1894
	Charles Alexander Butchart, M.B., C.M.,	1894
	Frederick Maurice Graham, F.R.C.S. Ed., L.R.C.P. Ed., *India*	1894
	Robert Hoggan, M.B., C.M., *Liberton*,	1894
	James Livingstone Thompson, M.B., C.M., *Australia*,	1894
260	John Stevens, M.D., F.R.C.P. Ed.,	1894
	Hugh Lewis Hughes, L.R.C.P. & S. Ed., *Dowlais*,	1894
	Sylvanus Glanville Morris, M.D., C.M., *Mardy*,	1894
	Georges P. Coromilas, M.D., *Athens, Greece*,	1894
	Thomas Easton, M.D., C.M., *Southampton*,	1894
265	David Robertson Dobie, M.D., C.M., *Crieff*,	1894
	Gopal Govind Vatve, M.D., *Bombay*,	1894
	Robert William Beesley, M.D., C.M., *Bolton*,	1894
	William A. Stephen, M.D., C.M., *Loftus-in-Cleveland*,	1894
	William Edward Fothergill, M.D., C.M., *Manchester*,	1894
270	George Sandison Brock, M.D., C.M., *Rome*,	1894
	John M. Munro Kerr, M.B., C.M., *Glasgow*,	1894
	John Montgomery, M.B., C.M., *Birmingham*,	1895
	*Robert Cochrane Buist, M.D., C.M., *Dundee*,	1895
	Robert Thomson Ferguson, M.B., C.M., *Anstruther*,	1895
275	William Henry Stephenson, L.R.C.P.& S.Ed., L.F.P.& S.Glasg., *Manchester*,	1895
	Angus Vallance MacGregor, M.D., C.M., *Hartlepool*,	1895
	Charles William Donald, M.D., F.R.C.S. Ed., *Carlisle*,	1895
	John Struthers, M.B., C.M., *Transkei, South Africa*,	1895
	B. W. Broad, M.B., C.M., *Cardiff*,	1895

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280	Edwin Hindmarsh, M.B., C.M., *Bengal*,	1895
	Patrick Mackin, M.D., F.R.C.S. Ed., *New Zealand*,	1895
	G. Edgar Helme, M.B., C.M., *Manchester*,	1895
	Percy Theodore Hughes, M.B., C.M., *Bexley*,	1895
	John Hosack Fraser, M.B., F.R.C.P. Ed., *Bridge of Allan*,	1895
285	Stewart Grant Ogilvy, M.B., C.M., *Fauldhouse*,	1895
	Thomas Howard Morgan, M.D., F.R.C.S. Ed., *Queensland, Aust.*,	1895
	William Macrae Taylor, M.B., F.R.C.S. Ed.,	1895
	David James Graham, M.D., F.R.C.P. Ed.,	1895
	Walter William Chipman, M.D., F.R.C.S. Ed., *Montreal*,	1895
290	John Cumming, F.R.C.S. Ed., F.R.C.P. Ed.,	1896
	Sol Jervois Aarons, M.D., C.M., *London*,	1896
	Robert Beveridge, M.B., C.M., *Leith*,	1896
	John Anderson, M.B. C.M., *Pitlochry*,	1896
	Thomas John Burton, M.D., C.M., *Bearsden*,	1896
295	Robert M'William Leith, M.D., C.M., *Port Elizabeth, Cape Colony*,	1896
	Robert Gordon M'Kerron, M.B., C.M., *Aberdeen*,	1896
	Frederick John M'Cann, M.D., M.R.C.P.L., *London*,	1896
	David Robert Taylor, L.R.C.P. & S.Ed., *Ayton*,	1896
	James Curtis Whyte, M.D., C.M.,	1896
300	George William Simla Paterson, M.B., C.M.,	1896
	William Robert Martine, M.B., C.M., *Haddington*,	1896
	Robert Henry Watson, M.D., C.M.,	1896
	Thomas Marshall Callender, M.D., C.M., *Sidcup*,	1896
	Lewis Grant, M.B., C.M., *Neston*,	1896
305	Robert Robertson, M.B., C.M.,	1897
	James Wilkie, L.R.C.P. & S. Ed., *Portobello*,	1897
	Andrew Graham, M.D., *Currie*,	1897
	Douglas Chalmers Watson, M.D., F.R.C.P. Ed.,	1897
	Roderick Murdoch Matheson, M.D., C.M.,	1897
310	*Robert Jardine, M.D., F.F.P.S.Glasg., M.R.C.S. Eng., *Glasgow*,	1897
	Daniel Charles Edington, M.D., C.M., *Penrith*,	1897
	Edwin Arthur Gibson, M.B., C.M., *London*,	1897
	John Macmillan, M.D., F.R.C.P. Ed.,	1897
	Harold Sherman Ballantyne, M.B., C.M., *Dalkeith*,	1897
315	Ernest Edward Porritt, M.D., F.R.C.S. Ed., *New Zealand*,	1897
	William John Garbutt, M.B., C.M., *Birmingham*,	1897
	Henry John Forbes Simson, M.B., F.R.C.S. Ed., *London*,	1897
	William Herbert Goldie, M.D., C.M., *Auckland, New Zealand*,	1897
	William Alexander Potts, M.D., C.M., *Birmingham*,	1897
320	Angus Macdonald, M.B., F.R.C.S. Ed.,	1897
	Bernard Samuel Story, M.D., F.R.C.S. Ed, *Annfield Plain*,	1898
	Alexander Macdonald, M.B., F.R.C.S. Ed.,	1898
	George Robert Livingston, M.D., C.M., *Dumfries*,	1898
	Charles Carmichael Forrester, M.B., C.M.,	1898
325	William Morrison Milne, M.B, C.M.,	1898
	William Joseph Murphy Barry, M.D., M.R.C.P. Ed., *Penarth*,	1898
	John Christie Forbes, L.R.C.P. & S. Ed., *Liberton*,	1898
	Alexander Cruikshank Ainslie, M.D., C.M.,	1898
	Henry Aylmer Dumat, M.D., F.R.C.P. Ed., *Durban, South Africa*,	1898
330	Gabriel Maurange, M.D., *Paris*,	1898
	John Thomas Woodside, L.R.C.P. & S. Ed., *Holywood*,	1898
	George Freeland Barbour Simpson, M.B., F.R.C.S. Ed., M.R.C.P. Ed.,	1898
	Alfred Charles Sandstein, M.D., Ch.B., *New Zealand*,	1898
	Alfred Shearer, M.B., Ch.B., *Newtown, N. Wales*,	1898
335	John Henry Rhodes, M.B., Ch.B., *Kendal*,	1898
	James Duncan Slight, M.D., Ch.B., *Leicester*,	1898
	Francis John Harvey Bateman, M.B., C.M., *London*,	1898
	Robert John Johnston, M.B., C.M.,	1899

		Date of Admission
	George Lyall Chiene, M.R. F.R.C.S. Ed.,	1899
340	Percy Theodore Herring, M.D., C.M.,	1899
	William Bertie Mackay, M.D., *Berwick-on-Tweed*,	1899
	Carel Hendrick Krüger, M.D., F.R.C.S. Ed., *Cape Colony*,	1899
	Captain Patrick Wilkins O'Gorman, M.D., D.P.H., *India*,	1899
	Edward William Scott Carmichael, M.D., F.R.C.S. Ed.,	1899
345	James Wilson M'Brearty, F.R.C.S. Ed., L.R.C.P. Ed., *New Zealand*,	1899
	John D. Cameron, M.D., *Montreal*,	1899
	George Crewdson Thomas, M.D., C.M., *London*,	1899
	John Eason, M.B., F.R.C.P. Ed., *Leith*,	1899
	William John Barclay, M.D., Ch.B.,	1899
350	Frederick Adolphus Fleming Barnardo, M.B., Ch.B., *Bournemouth*,	1899
	Alexander Dingwell Fordyce, M.D., F.R.C.P. Ed.,	1899
	William Thomas Ritchie, M.D., F.R.C.P. Ed.,	1899
	Owen, St John Moses, M.D., C.M., B.Sc., *Calcutta*,	1900
	Charles Wakeham Holmested, L.R.C.P. & S. Ed., L.F.P.S. Glasg., *Tuxford*,	1900
355	Donald MacGregor, M.D., C.M., *Jedburgh*,	1900
	Harry Oliphant Nicholson, M.D., F.R.C.P. Ed.,	1900
	Thomas Scott Brodie, M.B., C.M., *Wishaw*,	1900
	William Hope Fowler, M.B., Ch.B.,	1900
	John Stanley Manford, M.B., B.S., *Newcastle-on-Tyne*,	1900
360	Ogden Watson Ogden, M.D., M.R.C.S., *Newcastle-on-Tyne*,	1900
	John Craig, M.B., Ch.B.,	1900
	William Hartley Bunting, M.D., F.R.C.S. Ed., *Birmingham*,	1900
	Theodore Charles Mackenzie, M.B., Ch.B.,	1900
	Donald George Hall, M.B., M.R.C.S. Eng., *Gatehouse-of-Fleet*,	1900
365	Hugh Corbett Taylor Young, M.D., C.M., *Sydney*,	1900
	John Boyd Jamieson, M.D., F.R.C.S. Ed.,	1900
	William Alfred Johnstone Alexander, M.B., C.M.,	1900
	Malcolm M'Larty, M.B., C.M.,	1900
	Peter Joseph Henry Ferguson, M.B., C.M.,	1900
370	Frederick Gardiner, M.D., C.M.,	1900
	George Mackie, M.B., Ch.B, *Malvern*,	1900
	Kenmure Duncan Melville, M.D., Ch.B.,	1900
	John Thomas Dickie, L.R.C.P. & S. Ed.,	1900
	William Ernest Frost, M.B., Ch.B.,	1900
375	Frederick David Simpson, M.D., F.R.C.S. Ed.,	1900
	Francis Wilfrid Harlin, F.R.C.S. Ed., L.R.C.P. Ed., *Australia*,	1900
	William Darling, M.B., F.R.C.S. Ed.,	1900
	Robert Macfarlane Mitchell, M.B., F.R.C.S. Ed.,	1900
	Malcolm Campbell, M.B., F.R.C.S. Ed.,	1900
380	James Ramsay Munro, M.D., Ch.B., *Gateshead-on-Tyne*,	1901
	George James Rogerson Carruthers, M.B., Ch.B.,	1901
	Jessie Maclaren MacGregor, M.D., C.M.,	1901
	Hilda Maud M'Farlane, L.R.C.P. & S. Ed., *Larbert*	1901
	George Dickson, M.D., C.M.,	1901
385	Elsie Maud Inglis, M.B., C.M.,	1901
	George Robertson, L.R.C.P. & S. Ed., *Dunfermline*,	1901
	John Jeffrey, M.B., F.R.C.S. Ed., *Jedburgh*,	1901
	John Wishart Kerr, M.B., Ch.B.,	1901
	William Harold Graham Aspland, M.D., M.R.C.S. Eng., *Newfoundland*,	1901
390	William Taylor McArthur, M.D., F.R.C.S. Ed., *California*,	1901
	Alexander Waddel Greenhorn Clark, M.B., C.M.,	1901
	James Martin Reid, M.D., F.R.C.S. Ed., *Liverpool*,	1901
	Henry Overton Hobson, M.D., C.M., *London*,	1901
	Robert Patton Ranken Lyle, M.D., Ch.B., *Newcastle-on-Tyne*,	1901
395	Alexander Girvan, M.D., F.R.C.S. Ed., *Maybole*,	1901

		Date of Admission.
	Frederick William Kerr Tough, L.R.C.P. & S. Ed., *Leith*,	1901
	Robert Ashleigh Glegg, M.D., Ch.B.,	1901
	Walter Scott Patton, M.B., Ch.B., *S. Arabia*,	1901
	David Whiteside Maclagan, M.B., Ch.B., *New Zealand*,	1901
400	Kennedy C. M'Ilwraith, M.B., M.C.P. & S. Ont., *Toronto*,	1901
	Robert Alexander John Harper, M.D., Ch.B., *Dalkeith*,	1901
	William Hogg Prentice, M.D., Ch.B.,	1901
	Alexander Mowatt Malcolmson, M.B., Ch.B., *Linlithgow*,	1901
	Thomas Davey Luke, M.B., F.R.C.S. Ed.,	1901
405	David Albert Callender, M.B., Ch.B., *Leith*,	1901
	Caleb Williams Saleeby, M.D., Ch.B.,	1902
	John Andrew Douglas Thompson, *Port William*,	1902
	John Ligertwood Green, M.B., Ch.B.,	1902
	William Sloss, M.B., Ch.B., *Australia*,	1902
410	Charles James Hill Aitken, M.D., C.M., *Cape Colony*,	1902
	E. R. Secord, M.D., *Ontario*,	1902
	F. E. Thompson, M.D., *Montreal*,	1902
	John M'Gibbon, M.B., C.M.,	1902
	Peter Burden M'Nicol, M.D., C.M., *Stirling*,	1902
415	Thomas James Thomson, M.D., C.M.,	1902
	Charles Mowbray Pearson, M.B., Ch.B.,	1902
	Ewen John Maclean, M.D., M.R.C.P. Lond., *Cardiff*,	1902
	James William Somerville, M.D., C.M., *Galashiels*,	1902
	Alexander Miller, L.R.C.P. Ed., L.F.P.S. Glasg., *Glasgow*,	1902
420	Hugh Faulkner, M.B., Ch.B., *Banbury*,	1902
	Duncan Macnab Callender, M.B., Ch.B.,	1902
	Robert Cranston Low, M.B., Ch.B.,	1902
	Benjamin Philip Watson, M.B., Ch.B., *Largo*,	1902
	John Macdonald, M.B., C.M., *Cupar-Fife*,	1902
425	Mabel Hardie, M.B., Ch.B., *Stockport*,	1902
	John Sullivan, M.B., Ch.B.,	1902
	Charles William Somerville, M.B., Ch.B., *China*,	1902
	Frank Mayes Willcox, M.B., C.M.,	1902
	John Tennant, M.B., C.M., *Ashby*,	1902
430	Alexander Simpson Wells, M.B., F.R.C.S. Ed., *Cape Town*,	1903
	Andrew Binny Flett, M.B., Ch.B.,	1903
	William Henry Eden Brand, F.R.C.S. Ed., L.R.C.P. Ed., *Banchory*,	1903
	Francis Cavanagh, M.B., Ch.B., *Sheffield*,	1903
	Alfred Lambré White, L.R.C.P. & S. Ed., *North Berwick*,	1903
435	Robert Bathgate Johnston, L.R.C.P. & S. Ed.,	1903
	William Llewellyn Jones, M.D., F.R.C.S. Ed., *Merthyr-Tydvil*,	1903
	Robert Wilson Gibson, M.D., F.R.C.S. Ed., *Orton*,	1903
	Philip Henry Mules, M.B., Ch.B.,	1903
	Andrea Francis Honyman Rabagliati, *Ben Rhydding*,	1903
440	Donald Gregor MacArthur, M.D., C.M., *Fort William*,	1903
	Henry Martyn Stumbles, M.B., Ch.B., *Amble*,	1903
	Gilbert John Farie, M.B., Ch.B., *Bridge of Allan*,	1903
	Cameron Robertson Gibson, M.B., Ch.B., *Gretna*,	1903
	James Mathieson Kirkness, M.B., Ch.B.,	1903
445	Katherine Jane Stark Clark, M.B., Ch.B.,	1903
	David Halliday Croom, M.B., Ch.B.,	1903
	Eleanor Russell Henderson, M.B., Ch.B., *Crieff*,	1903
	Robert William Johnstone, M.B., Ch.B.,	1903
	James William Keay, M.B., Ch.B.,	1903
450	Ivan Cochrane Keir, M.B., Ch.B., *Melksham*,	1903
	Alexander Grant Macdonald, M.B., C.M.,	1903
	Charles John Shaw, M.B., Ch.B., *Blairgowrie*,	1903
	Frederick Porter, M.B., C.M.,	1904
	Sherwin Gibbons, M.D., *West Roxbury, Mass., U.S.A.*,	1904
455	George Forden, M.R.C.S., Eng., L.S.A., *Berkeley*,	1904

		Date of Admission.
	Russell Gerald William Adams, L.R.C.P. & S. Ed.,	1904
	Duncan Campbell Lloyd Fitzwilliams, M.B., Ch.B., *South Wales*,	1904
	Clarence Brian Dobell, M.B., M.R.C.S. Eng., M.R.C.P.L., *Cheltenham*,	1904
	Hugh Stevenson Davidson, M.B., Ch.B.,	1904
460	Andrew Milroy Fleming, C.M.G., M.B., F.R.C.S, Ed., *Rhodesia*,	1904
	Thomas William Edmondston Ross, M.B., Ch.B.,	1904
	John Benjamin Hellier, M.D., M.R.C.S. Eng., *Leeds*	1904

ORDINARY FELLOWS.

ARRANGED ALPHABETICALLY.

(*a.*) LIFE MEMBERS.

	Anderson, Dr John, Pitlochry,	1896
	Barbour, Dr A. H. Freeland, 4 Charlotte Square,	1879
	Barclay, Dr William John, Australasian Club, Melbourne Place,	1899
	Brock, Dr G. Sandison, 2 Via Veneto, Rome,	1894
5	Cavanagh, Dr Francis, 396 Ecclesall Road, Sheffield,	1903
	Craig, Dr John, 71 Bruntsfield Place,	1900
	Craig, Dr William, 71 Bruntsfield Place,	1870
	Croom, Dr David Halliday, 25 Charlotte Square,	1903
	Croom, Sir John Halliday, 25 Charlotte Square,	1870
10	Cumming, Dr John 20 Gilmore Place,	1896
	Dobell, Dr C. B., The Grove, Charlton Kings, near Cheltenham,	1904
	Dumat, Dr Henry Aylmer, 7 Devonshire Place, Durban, Natal, South Africa,	1898
	Fleming, Dr Andrew M., Salisbury, Rhodesia,	1904
	Gibson, Dr R. Wilson, Town Head House, Orton, Tebay,	1903
15	Grant, Dr Lewis, Neston, Cheshire,	1896
	Hart, Dr D. Berry, 29 Charlotte Square,	1877
	Inch, Dr Robert, Gorebridge,	1887
	Johnston, Dr D. W., P.O. Box 2022, Johannesburg, Transvaal,	1892
	Livingston, Dr George R., 47 George Street, Dumfries,	1898
20	M'Arthur, Dr W. Taylor, 959 S. Figueroa St., Los Angeles, California,	1901
	M'Brearty, Dr J. Wilson, Greymouth, West Coast, New Zealand,	1899
	M'Farlane, Dr Hilda M., Stirling District Asylum, Larbert,	1901
	Martin, Dr Christopher, Cleveland House, George Road, Edgbaston, Birmingham,	1888
	Morgan, Dr T. H., Gympie, Queensland, Australia,	1895
25	Mules, Dr P. Henry, Australasian Club, Melbourne Place,	1903
	Pereira, Dr A. A. Jervis, Consul de Grèce en Mozambique, Lourenço Marques, Delagoa Bay, South Africa,	1888
	Ponder, Dr Charles F., Glenorchy, Hobart, Tasmania,	1892
	Ranking, Dr J. E., Tunbridge Wells,	1881
	Ross, Dr James F. W., 481 Sherbourne Street, Toronto, Canada,	1889
30	Simpson, Professor A. R., 52 Queen Street,	1858
	Simpson, Dr G. F. Barbour, 50 Melville Street,	1898
	Simpson, Dr W. Petrie, Viewbank, Bathgate	1892
	Struthers, Dr John, Nqamakwe, Transkei, South Africa,	1895
	Vatve, Dr Gopal Govind, care of H.H. The Rajah of Miraj, Bombay, India,	1894
35	Wells, Dr A. Simpson, c/o Dr Sharp, Mowbray, Cape Town, South Africa,	1903

(*b.*) ANNUAL SUBSCRIBERS.

		Date of Admission.
	Aarons, Dr S. Jervois, 14 Stratford Place, London, W.,	1896
	Adam, Dr George Rothwell, 84 Collins Street, Melbourne, Australia,	1879
	Adams, Dr George T. Cooke	1892
	Adams, Dr Russell G. W., Australasian Club, Melbourne Place	1904
40	Affleck, Dr J. O., 38 Heriot Row,	1869
	Ainslie, Dr A. C., 20 Newington Road,	1898
	Aitchison, Dr R. S., 74 Great King Street,	1886
	Aitken, Dr C. J. Hill, c/o Dr Mackinnon, Somerset East, Cape Colony,	1902
	Alexander, Dr W. A. Johnstone, 1 George Place,	1900
45	Alexander, Dr W. B., 8 Blenheim Place,	1882
	Allison, Dr J., Fuller House, Kettering, Northampton,	1888
	Anderson, Dr Fred. T., Braunton, N. Devon,	1892
	Andrew, Dr James, 2 Atholl Crescent,	1868
	Archibald, Dr J., Hazelden, Wimborne Road, Bournemouth,	1877
50	Armitage, Dr J. A., 28 Waterloo Road South, Wolverhampton,	1886
	Armour, Dr E. F., 149 Bruntsfield Place,	1889
	Aspland, Dr W. H. Graham, Harbour Grace, Newfoundland,	1901
	Baildon, Dr F. J., 42 Hoghton Street, Southport,	1887
	Balfour, Dr Andrew, 23 Abercorn Terrace, Portobello,	1877
55	Ballantyne, Dr A., Dalkeith,	1870
	Ballantyne, Dr H. S., Dalkeith,	1897
	Ballantyne, Dr J. W., 24 Melville Street,	1883
	Barnardo, Dr F. A. F., Glendhoon, Surrey Road, Bournemouth,	1899
	Barrington, Dr Fourness, 213 Macquarrie Street, Sydney, Australia,	1884
60	Barry, Dr W. J. M., 17 Hickman Road, Penarth,	1898
	Bateman, Dr F. J. Harvey, Heath End, Blackheath, London, S.E.,	1898
	Beatty, Dr Samuel, Craigvar, Pitlochry,	1888
	Beesley, Dr R. W., 135 Deane Road, Bolton,	1894
	Bell, Dr J. Lumsden, Driffield, Yorkshire,	1884
65	Bell, Dr Robert, 29 Lynedoch Street, Glasgow, W.,	1878
	Bentley, Dr G. H., Kirkliston,	1877
	Beveridge, Dr Robert, 9 James Place, Leith,	1896
	Black, Dr Alexander, 13 Howe Street,	1881
	Black, Dr J. Watt, 15 Clarges Street, Piccadilly, London, W.,	1863
70	Blaikie, Dr R. H., 10 Mayfield Gardens,	1888
	Blair, Dr J. A., 16 Windsor Terrace, Newcastle-on-Tyne,	1887
	Bleloch, Dr A., 2 Lonsdale Terrace,	1876
	Boddie, Dr G. P., 73 Bruntsfield Place,	1889
	Booth, Dr William, 2 Minto Street,	1891
75	Borrowman, Dr Philip G., Galvelmore, Crieff,	1893
	Boxill, Dr N. L., Buttalls, St George, Barbados,	1883
	Boyd, Dr J. St Clair, Chatsworth House, Malone Road, Belfast,	1887
	Brand, Dr Eden, Bellfield, Banchory,	1903
	Brewis, Dr N. T., 23 Rutland Street,	1883
80	Brewis, Dr R. Adams, The West Gate, Dursley, Gloucestershire,	1888
	Broad, Dr B. W., The Sanitorium, Cardiff,	1895
	Brodie, Dr T. Scott, Belhaven Terrace, Wishaw,	1900
	Brodie, Dr W. Haig, Battle, Sussex,	1881
	Bruce, Dr Alexander, 8 Ainslie Place	1887
85	Buist, Dr J. W., 1 Clifton Terrace,	1877
	Buist, Dr R. C., 166 Nethergate, Dundee,	1895
	Bunting, Dr W. Hartley, 22 Islington Row, Edgbaston, Birmingham,	1900

		Date of Admission.
	Burton, Dr Thomas J., Monklands, Bearsden, Glasgow,	1896
	Butchart, Dr C. A., 52 Leith Walk, Leith,	1894
90	Cairns, Dr W. Murray, 67 Catherine Street, Liverpool,	1892
	Calder, Dr H. L., 60 Leith Walk, Leith,	1882
	Callender, Dr D. A., 180 Ferry Road, Leith,	1901
	Callender, Dr D. M., Inverard, Inverleith Gardens,	1902
	Callender, Dr T. M., Inverard, Sidcup,	1896
95	Cameron, Prof. James C., M.D., 941 Dorchester St., Montreal,	1888
	Cameron, Dr John D., 2068 St Catherine Street, Montreal, Canada,	1899
	Campbell, Dr Malcolm, 17 Walker Street,	1900
	Carmichael, Dr Edward, 21 Abercromby Place,	1887
	Carmichael, Dr E. W. Scott, 32 Rutland Square,	1899
100	Carmichael, Dr James, 22 Northumberland Street,	1871
	Carruthers, Dr G. J. R., 4 Melville Street,	1901
	Cattanach, Dr J. G., 3 Alvanley Terrace,	1893
	Chiene, Dr George L., 23 Alva Street,	1899
	Chipman, Dr W. W., 287 Mountain Street, Montreal, Canada,	1895
105	Church, Dr H. M., 36 George Square,	1875
	Clark, Dr A. W. G., 28 Braid Crescent,	1901
	Clark, Dr J. A., 4 Cambridge Street,	1887
	Clark, Dr Katherine S., Leith Hospital,	1903
	Cobbett, Dr C. N., 97 Cook Street, Victoria, British Columbia,	1890
110	Coromilas, Dr Georges P., 67 Minerva Street, Athens, Greece,	1894
	Cox, Dr Joshua J., Cromwell Chambers, 38 Deansgate, Manchester,	1876
	Croudace, Dr J. H., Foregate House, Stafford,	1878
	Cullen, Dr G. M., 50 Minto Street,	1890
	Currie, Dr A. S., 81 Queen's Road, Brownswood Park, London, N.,	1882
115	Darling, Dr T. Brown, 13 Merchiston Place,	1884
	Darling, Dr William, 2 Warrender Park Terrace,	1900
	Davidson, Dr D. G., 9 Granville Terrace,	1892
	Davidson, Dr H. S., 15 Leven Terrace,	1904
	Davies, Dr E. T., 1 St Domingo Grove, Liverpool,	1887
120	Dendle, Dr Frank, Overton House, Spring Grove, Isleworth,	1892
	Deverell, Dr H. C., 12 Windsor Street,	1882
	Dewar, Dr M., 24 Lauriston Place,	1891
	Dickie, Dr J. T., 37 Lauriston Place,	1900
	Dickson, Dr George, 9 India Street,	1867
125	Dickson, Dr George, 14 Ardmillan Terrace,	1901
	Dobie, Dr D. Robertson, Charlesfield, Crieff,	1894
	Donald, Dr C. W., 28 Portland Square, Carlisle,	1895
	Douglas, Dr Carstairs, 2 Royal Crescent West, Glasgow,	1890
	Duncan, Dr A. J., 158 Nethergate, Dundee,	1879
130	Duncan, Dr A. S., 9 Newlands Park, Sydenham, London, S.E.,	1890
	Dunlop, Dr H. M., 20 Abercromby Place,	1884
	Dunsmure, Dr J., 53 Queen Street,	1876
	Eason, Dr John, 196 Newhaven Road, Leith,	1899
	Easterbrook, Dr A. M., Gorebridge,	1893
135	Easterbrook, Dr C. C., Glengall, Ayr,	1892
	Easton, Dr Thomas, 28 East Park Terrace, Southampton,	1894
	Eden, Dr T. Watts, 26 Queen Anne Street, Cavendish Square, London, W.,	1888
	Edington, Dr D. C., 4 Portland Place, Penrith,	1897
	Elder, Dr W. Nicol, 6 Torphichen Street,	1879
140	Evans, Dr O. F., 71 Mulgrave Street, Liverpool,	1890
	Farie, Dr G. J., Strathallan House, Bridge of Allan,	1903
	Farquharson, Dr J. D., 242 Westgate Road, Newcastle-on-Tyne,	1890
	Farquharson, Dr J. M., 2 Coates Place,	1894
	Faulkner, Dr Hugh, Sydenham House, Banbory, Oxon.	1902

		Date of Admission.
145	Felkin, Dr R. W., 12 Oxford Gardens, North Kensington, London, W.,	1884
	Ferguson, Dr J. Haig, 25 Rutland Street,	1885
	Ferguson, Dr P. J. H., 20 Leopold Place,	1900
	Ferguson, Dr R. T., Anstruther, Fife,	1895
	Finlay, Dr W. A., 50 Trinity Road,	1880
150	Fitzwilliams, Dr D. C. L., Cilgwyn, Newcastle Emlyn, South Wales,	1904
	Flett, Dr A. B., 60 George Square,	1903
	Forbes, Dr J. Christie, Ardveich, Liberton,	1898
	Forde, Dr E. S., Dalry, Galloway,	1893
	Forden, Dr George, Berkeley, Gloucestershire	1904
155	Fordyce, Dr A. Dingwall, 15 Melville Street,	1899
	Fordyce, Dr William, 20 Charlotte Square,	1888
	Fothergill, Dr W. E., 13 St John Street, Manchester,	1894
	Forrester, Dr C. C., 3 Albert Terrace,	1898
	Fowler, Dr Simson C., Juniper Green,	1892
160	Fowler, Dr W. Hope, 5 St Vincent Street,	1900
	Fox, Dr James S., 6 Baldwin Street, St Helens,	1889
	Fox, Dr J. W., 18 Bernard Street, Southampton,	1887
	Fraser, Dr J. Hossack, Fernfield, Bridge of Allan,	1895
	Fraser, Dr J. Joyner, The Rowans, Avenue Victoria, Scarborough,	1880
165	Fraser, Dr Nutting S., 205 Gower Street, St John's, Newfoundland,	1887
	Frost, Dr W. E., 6 Atholl Place,	1900
	Garbutt, Dr W. J., 1 Bournbrook Road, Selly Park, Birmingham,	1897
	Gardiner, Dr Frederick, 14 Rankeillor Street,	1900
	Gayton, Dr William, Bartram Lodge, Fleet Road, Hampstead, London, N.W.,	1885
170	Gemmell, Dr J. E., 12 Rodney Street, Liverpool,	1885
	Gibbons, Dr Sherwin, 2003 Centre Street, West Roxbury, Mass., U.S.A.,	1904
	Gibson, Dr Cameron R., Sarkbank, Gretna,	1903
	Gibson, Dr E. Arthur, 68 Rochester Terrace, Hyde Park, London, W.,	1897
	Giffen, Dr J. T. M., 138 Boughton, Chester,	1892
175	Giles, Dr A. B., 4 Palmerston Place,	1891
	Gilmour, Dr T. F., Port Ellen, Islay,	1882
	Girvan, Dr Alexander, Whitehall House, Maybole,	1901
	Glegg, Dr R. Ashleigh, 4 Lynedoch Place,	1901
	Goldie, Dr W. Herbert, Auckland, New Zealand,	1897
180	Graham, Dr A., Curriebank, Currie,	1897
	Graham, Dr D. J., 26 Rutland Street,	1895
	Graham, Dr F. M., c/o Dr Neve, Sringar, Kashmir, India	1894
	Graham, Dr J. Gibson, 17 Ashton Ter., Dowanhill, Glasgow,	1888
	Graham, Dr R. Balfour, Leven, Fife,	1893
185	Green, Dr John Ligertwood, 16 Mayfield Gardens	1902
	Greene, Dr T. W. N., 45 Dartmouth Square, Leeson Park, Dublin,	1889
	Gregory, Dr W. H., North Bar Street, Beverley, Yorks,	1893
	Guthrie, Dr A. Cowan, 21 Pilrig Street,	1888
	Hall, Dr D. G., Woodlyn, Gatehouse-of-Fleet,	1900
190	Hamilton, Dr J. R., Hawick,	1879
	Hamp, Dr J. Walton, Penn Road, Wolverhampton,	1886
	Hardie, Dr Mabel, High Lane, near Stockport,	1902
	Hardie, Dr Thomas, 10 John's Place, Leith,	1870
	Harlin, Dr Francis W., Lewisham Road, Windsor, Melbourne, Victoria,	1900
195	Harper, Dr R. A. J., Sheriffhall, Dalkeith,	1901
	Harvey, Dr Charles E., Kingswood, Sav-la-Mar, Jamaica, W.I.,	1889

		Date of Admission.
	Harvey, Dr James, 7 Blenheim Place,	1891
	Haultain, Dr F. W. N., 17 Rutland Street,	1884
	Havelock, Dr J. G., Sunnyside, Montrose,	1888
200	Hay, Dr Henry, 19 Nelson Street,	1879
	Hellier, Dr J. B., Glengariff, North Grange Road, Leadingley, Leeds,	1904
	Helm, Dr J. H., Clarence Cottage, Ratho,	1888
	Helm, Dr R. Dundas, 13 Portland Square, Carlisle,	1892
	Helme, Dr G. Edgar, Gloucester House, Rusholme, Manchester,	1895
205	Henderson, Dr Alexander, 21 Pitt Street,	1891
	Henderson, Dr Eleanor, South Church Manse, Crieff,	1903
	Herring, Dr Percy T., Physiological Laboratory, University of Edinburgh,	1899
	Hewetson, Dr J., Holmfield, Reigate,	1881
	Hindmarsh, Dr Edwin, Mozufferpore, Tirhoot State Railway Bengal, India,	1895
210	Hobson, Dr H. Overton, 32 Upper Berkeley Street, Portman Square, London, W.,	1901
	Hoggan, Dr Robert, Liberton Park, Liberton,	1894
	Holmested, Dr C. W., Tuxford, Newark, Notts,	1900
	Hughes, Dr H. L., Gwernllwyn House, Dowlais, Glamorganshire,	1894
	Hughes, Dr P. T., Baldwyn's Park, Bexley,	1895
215	Hunter, Dr George, 33 Palmerston Place,	1881
	Hutcheson, Dr J., 44 Moray Place,	1888
	Inglis, Dr Elsie M., 8 Walker Street,	1901
	Jamieson, Dr Hugh, 13 Lauriston Place,	1889
	Jamieson, Dr James, 43 George Square,	1866
220	Jamieson, Dr J. Boyd, 43 George Square,	1900
	Jardine, Dr Robert, 5 Clifton Place W., Glasgow,	1897
	Jeffrey, Dr John, Glen Bank, Jedburgh,	1901
	Johnston, Dr Robert B., 22 Lauriston Place,	1903
	Johnston, Dr R. J., 1 Buccleuch Place,	1899
225	Johnstone, Dr R. W., Royal Infirmary,	1903
	Jones, Dr W. Llewellyn, 58 Thomas Street, Merthyr-Tydvil,	1903
	Keay, Dr J. W., 18 Mentone Terrace,	1903
	Keiller, Prof. Wm., 210 Levy Building, Galveston, Texas, U.S.A.,	1890
	Keir, Dr J. C., The Limes, Melksham, Wilts,	1903
230	Ker, Dr Claude, B., City Hospital, Comiston Road,	1894
	Kerr, Dr J. M. Munro, 28 Berkeley Terrace, Glasgow,	1894
	Kerr, Dr J. W., 121 Trinity Road, Trinity,	1901
	King, Dr J. K., The Glen Springs Sanitorium, Watkins, New York, U.S.A.,	1884
	Kirk, Dr Robert, Rowan Bank, Bathgate,	1887
235	Kirkness, Dr J. M., 14 Dalkeith Road,	1903
	Krüger, Dr C. H., Main St., Wynberg, Cape Colony, S. Africa,	1899
	Kynoch, Professor Campbell, 8 Airlie Place, Dundee,	1892
	Lackie, Dr James, 1 Randolph Crescent,	1889
	Laing, Dr J. H. A., 11 Melville Street,	1891
240	Langwell, Dr H. G., 4 Hermitage Place, Leith,	1891
	Lee, Dr Herbert E., Gunnedah, N.S.W., Australia,	1892
	Leigh, Dr J. Dickinson, Bishop-Auckland, Co. Durham,	1886
	Leith, Dr Robert M., Provincial Hospital, Port Elizabeth, Cape Colony, South Africa,	1896
	Linton, Dr John, 60 George Square,	1863
245	Littlejohn, Dr Harvey, 1 Atholl Crescent,	1890
	Lockhart, Dr F. A. L., 38 Bishop Street, Montreal, Canada,	1890
	Low, Dr R. C., 87 Colinton Road,	1902
	Lucas, Dr Robert, Dalkeith,	1871
	Luke, Dr Thomas D., 95 Shandwick Place,	1901

		Date of Admission.
250	Lyle, Dr F. W., 97 Gordon Road, Ealing, London, W.,	1890
	Lyle, Dr R. P. Ranken, 11 Ellison Place, Newcastle-on-Tyne,	1901
	MacArthur, Dr D. G., Fort William,	1903
	M'Call, Dr John, 9 Windsor Street,	1886
	M'Callum, Dr H., Kinloch-Rannoch,	1887
255	M'Cann, Dr F. J., 5 Curzon Street, Mayfair, London, W.,	1896
	Macdonald, Dr Alexander, 42 Polwarth Terrace,	1898
	Macdonald, Dr A. G., 4 Torphichen Street,	1903
	Macdonald, Dr Angus, 9 Rutland Square,	1897
	Macdonald, Dr John, Marathon House, Cupar-Fife,	1902
260	Macdonald, Dr W. Fraser, 16 Buckingham Ter., Glasgow, W.,	1884
	M'Gibbon, Dr John, 22 Heriot Row,	1902
	MacGregor, Dr A. V., Durham House, Hartlepool,	1895
	MacGregor, Dr Donald, Friar Bank, Jedburgh,	1900
	Macgregor, Dr G. S., 2 Burnbank Terrace, Glasgow W.,	1888
265	MacGregor, Dr Jessie M., 8 Walker Street,	1901
	M'Ilwraith, Dr Kennedy C., 39 Carlton St., Toronto, Canada,	1901
	Mackay, Dr George, 74 Bruntsfield Place,	1879
	Mackay, Dr W. B., 23 Castlegate, Berwick-on-Tweed,	1899
	Mackenzie, Dr R., Napier, Nairn,	1887
270	Mackenzie, Dr T. C., Morningside Royal Asylum,	1900
	M'Kerron, Dr R. Gordon, 1 Albyn Place, Aberdeen,	1896
	Mackie, Dr George, Boyd's Lodge, Malvern, Worcestershire,	1900
	Mackin, Dr Patrick, 12 Ingestre St., Wellington, New Zealand,	1895
	Mackness, Dr G. O. C., Fort Street House, Broughty-Ferry,	1887
275	Maclagan Dr D. W., Kaponga, Taranaki, New Zealand,	1901
	M'Larty, Dr Malcolm, 7 Bellevue Place,	1900
	M'Lean, Dr Archibald, Crosshouse, Kilmarnock,	1890
	Maclean, Dr Ewen, J., 12 Park Place, Cardiff,	1902
	Macmillan, Dr John, 48 George Square,	1897
280	M'Murtry, Dr L. S., 1912 Sixth Street, Louisville, Kentucky, U.S.A.,	1889
	M'Nicol, Dr P. B., 10 Pitt Terrace, Stirling,	1902
	MacRae, Dr John, Lynwood, Murrayfield,	1893
	MacVie, Dr S., Chirnside,	1881
	M'Watt, Dr John, Duns,	1879
285	Macwatt, Dr R. C., 7th Bengal Cavalry, care of Messrs King, King & Co., Bombay,	1885
	Maddox, Dr Ralph H., I.M.S., Chapora, Saran, Bengal,	1887
	Malcolmson, Dr Alexander M., St Catherine's, Linlithgow,	1901
	Manford, Dr J. Stanley, 70 Osborne Road, Newcastle-on-Tyne,	1900
	Marshall, Dr G. Balfour, 19 Sandyford Place, Glasgow,	1891
290	Marshall, Dr William, Milnathort,	1884
	Martin, Dr Charles, Dagenham House, Newton Abbot, South Devon,	1892
	Martin, Dr J. W., Burnfoot, Cluden, Dumfries,	1887
	Martine, Dr W. R., Weston, Haddington,	1896
	Matheson, Dr A. A., 41 George Square,	1887
295	Matheson, Dr Roderick M., 33 Buccleuch Place,	1897
	Matthew, Dr Alexander, Corstorphine,	1885
	Maurange, Dr Gabriel, 6 Rue de Tournon, Paris	1898
	Melville, Dr Kenmure, 2 Nile Grove,	1900
	Menzies, Dr David, 20 Rutland Square,	1877
300	Messer, Dr Fordyce, Helensburgh,	1866
	Michael, Dr Gustave, 5 Cambridge Place, Chestergate, Regent's Park, London, N.W.,	1885
	Millard, Dr W. W., Middlefield House, Leith Walk,	1884
	Miller, Dr Alexander, 1 Royal Terrace, Crosshill, Glasgow,	1902
	Miller, Dr W. H., 51 Northumberland Street,	1886
305	Milligan, Dr D., 11 Palmerston Place,	1893

		Date of Admission.
	Milne, Dr W. M., 14 Newington Road,	1898
	Mitchell, Dr G. B., 3 Mulgrave Place, Whitby,	1898
	Mitchell, Dr R. M., c/o Mrs Johnston, 151 Bruntsfield Place,	1900
	Montgomery, Dr John, The Highlands, Balsall Heath, Birmingham,	1895
310	Moorhouse, Dr J. Ernest, 1 Glebe Avenue, Stirling,	1892
	More, Dr James, Rothwell, Kettering, Northampton,	1880
	Morison, Dr Albert E., Wellington Road, West Hartlepool,	1888
	Morris, Dr S. Glanville, Myrddin House, Mardy, Glamorganshire,	1894
	Moses, Dr O. St John, 8 Lansdowne Road, Calcutta,	1900
315	Mowat, Dr John, 6 Buccleuch Place,	1884
	Munro, Dr A. Watson, 183 Liverpool Street, Sydney, Australia,	1892
	Munro, Dr J. Ramsay, Waverley Terrace, Coatsworth Road, Gateshead-on-Tyne,	1901
	Murray, Dr A. Lang, Killara, Sydney, N.S.W., Australia,	1889
	Murray, Dr D. R., 41 Albany Street, Leith,	1878
320	Murray, Dr James, 1 Brandon Street,	1879
	Nairne, Dr J. Stuart, 141 Hill Street, Garnet Hill, Glasgow,	1889
	Napier, Dr A. D. Leith, North Terrace, Adelaide, South Australia,	1878
	Nicholson, Dr H. Oliphant, 20 Manor Place,	1900
	Ogden, Dr O. Watson, 38 Jesmond Road, Newcastle-on-Tyne,	1900
325	Ogilvy, Dr Stewart Grant, Fauldhouse,	1895
	O'Gorman, Dr Patrick W., 17th Bengal Infantry, Benares, N.-W. Provinces, India,	1899
	Oliphant, Dr E. H. Lawrence, 23 Newton Place, Glasgow,	1885
	Orr, Dr John, Heather Lea, Clarendon Road, Eccles, Lancash.,	1887
	Orr, Dr W. Basil, 13 Braid Road,	1889
330	Paterson, Dr G. Keppie, 19 Albany Street,	1882
	Paterson, Dr G. W. Simla, 147 Bruntsfield Place,	1896
	Patton, Dr W. Scott, I.M.S., Medical Officer in Charge, C/49 Native Field Hospital, D'thola, Aden Hinterland, S. Arabia,	1901
	Pearson, Dr C. M., 17 Alva Street,	1902
	Peddie, Dr H. Anderson, 24 Palmerston Place,	1882
335	Perigal, Dr A., New Barnet Herts,	1887
	Pirie, Dr John, 15 Ardmillan Terrace,	1888
	Playfair, Dr John, 5 Melville Crescent,	1873
	Poole, Dr T. D., Aberdeen Cottage, Poulton-le-Fylde,	1890
	Porritt, Dr E. E., Wanganui, New Zealand,	1897
340	Porteous, Dr J. Lindsay, 83 Warburton Avenue, Yonkers, New York,	1875
	Porter, Dr Frederick, 65 Morningside Road,	1904
	Potts, Dr W. A., 160 Hagley Road, Edgbaston, Birmingham,	1897
	Prentice, Dr W. H., 53 Dick Place,	1901
	Price, Dr A. W. Gordon, 9 Grange Road,	1890
345	Price, Dr E. F. T., 1 Middleby Street,	1890
	Primrose, Dr Alex., 100 College Street, Toronto, Canada,	1887
	Pringle, Dr J. Hogarth, 172 Bath Street, Glasgow,	1886
	Proudfoot, Dr Thomas, 30 Lauriston Place,	1884
	Rabagliati, Dr A. H., Whinbrae, Ben Rhydding, Yorkshire,	1903
350	Rattray, Dr A. M. T., Portobello,	1869
	Reid, Dr J. M., Stanley Villas, Crosby, near Liverpool,	1901
	Reid, Dr W. L., 7 Royal Crescent W., Glasgow,	1880
	Reid, Dr W. Spence, Oakley, Kirkcudbright,	1880
	Rendell, Dr Herbert R., P.O. Box 606, St John's, Newfoundland,	1882
355	Rhodes, Dr J. H., Vicarage Terrace, Kendal,	1898
	Richardson, Dr William, 66 Cotham Road, Bristol,	1888
	Ritchie, Dr A. Brown, 163 Withington Road, Whalley Range, Manchester,	1892
	Ritchie, Dr James, 22 Charlotte Square,	1880

		Date of Admission.
	Ritchie, Dr W. T., 9 Atholl Place,	1899
360	Roberton, Dr Ernest, Auckland, New Zealand,	1887
	Roberts, Dr Ernest T., 75 Skipton Road, Keighley,	1890
	Roberts, Dr R. W., Cattybrook House, Cwmavon, near Port Talbot, South Wales,	1894
	Robertson, Dr George, Braehead, Viewfield Place, Dunfermline,	1901
	Robertson, Dr Robert, 26 Royal Circus,	1897
365	Robertson, Dr W. B., St Anne's, 101 Thurlow Park Road, West Dulwich, London, S.E.,	1870
	Robertson, Dr W. G. Aitchison, 26 Minto Street,	1889
	Robins, Dr H., Sav-la-Mar, Jamaica, W.I.,	1893
	Robinson, Dr H. Shapter, Talfourd House, 78 Peckham Road, Camberwell, London, S.E.,	1890
	Ronaldson, Dr T. R., 8 Charlotte Square,	1877
370	Rosa, Dr Albert F., 28 Pitt Street,	1893
	Ross, Dr J. W. E., 1 Merchiston Bank Avenue,	1904
	Russell, Dr W., 3 Walker Street,	1890
	Saleeby, Dr C. W., 3 Malta Terrace,	1902
	Sandstein, Dr Alfred C., The Laurels, Gloucester Street, Christchurch, New Zealand,	1898
375	Saunders, Dr F. A., Grahamstown, Cape Colony, South Africa,	1885
	Schofield, Dr Linn J., Warrensburg, Mo., U.S.A.,	1893
	Scott, Dr T. R., Musselburgh,	1880
	Secord, Dr E. R., 112 Market Street, Brantford, Ontario, Canada,	1902
	Shaw, Dr C. J., Blairgowrie,	1903
380	Shaw, Dr W. J., Cockburnspath,	1892
	Shearer, Dr Alfred, Newtown, N. Wales,	1898
	Simpson, Dr F. D., 14 Garscube Terrace, Murrayfield,	1900
	Simson, Dr Harry, 80 Brook Street, London W.,	1897
	Slight, Dr J. D., 61 London Road, Leicester,	1898
385	Sloan, Dr Allen T., 22 Abercromby Place,	1893
	Sloan, Dr S., 5 Somerset Pl., Sauchiehall St. West, Glasgow,	1887
	Sloss, Dr William, Windsor, Sturt Street, Ballarat, Melbourne, Australia,	1902
	Smart, Dr David, 74 Hartington Road, Sefton Park, Liverpool,	1882
	Smith, Dr G. H. Walton, Pendower, Oxford St., Paddington, Sydney, Australia,	1892
390	Smith, Dr Gains T., 15 Church Street, Moncton, New Brunswick, Canada,	1891
	Smith, Dr James, 4 Brunton Place,	1891
	Smith, Dr John, Brycehall, Kirkcaldy,	1885
	Smith, Dr W. Ramsay, Central Board of Health, Adelaide, South Australia,	1892
	Sneddon, Dr William, 58 Bonnygate, Cupar-Fife,	1888
395	Somerville, Dr C. W., London Mission, Wuchang, by Hankow, Central China,	1902
	Somerville, Dr James W., 12 Abbotsford Road, Galashiels,	1902
	Somerville, Dr Robert, 12 Abbotsford Road, Galashiels,	1881
	Spalding, Dr William, Gorebridge,	1867
	Spence, Dr R., St Ninians, Burntisland,	1878
400	Spence, Dr William, Sydney House, Dollar,	1884
	Stephen, Dr W. A., Loftus-in-Cleveland, Yorkshire,	1894
	Stephenson, Dr W. H., 131 Rochdale Road, Harpurhey, Manchester,	1895
	Stevens, Dr John, 2 Shandon Street,	1894
	Stewart, Dr J S., 15 Merchiston Place,	1884
405	Stewart, Dr R., 42 George Square,	1885
	Stirling, Dr R., 4 Atholl Place, Perth,	1892
	Story, Dr B. S., Manitoba House, Annfield Plain,	1898

		Date of Admission
	Stumbles, Dr H. M., Amble House, Amble, Northumberland,	1903
	Sturrock, Dr J. F., Arima, Broughty-Ferry,	1887
410	Sullivan, Dr John, 34 Gilmore Place,	1902
	Sym, Dr A. C., 144 Morningside Road,	1885
	Taylor, Dr David R., St Helen's, Ayton,	1896
	Taylor, Dr William, 12 Melville Street,	1868
	Taylor, Dr W. Macrae, 12 Melville Street,	1895
415	Teacher, Dr C., 8 Nile Grove,	1887
	Temple, Dr G. H., Ailanthus, Weston-super-Mare,	1888
	Tennant, Dr John, Ashby, near Doncaster	1902
	Thatcher, Dr C. H., 8 Melville Crescent,	1877
	Thin, Dr Robert, 38 Albany Street,	1891
420	Thomas, Dr G. C., 34 West Hill, Sydenham, London, S.E.,	1899
	Thompson, Dr F. E., 20 Park Avenue, Montreal, Canada,	1902
	Thompson, Dr James L., Castlemaine, Victoria, Australia,	1894
	Thompson, Dr John A. Douglas, Barmeal, Port-William, Wigtownshire,	1902
	Thomson, Dr A. D. R., 19 Bridge Street, Musselburgh,	1877
425	Thomson, Dr John, 14 Coates Crescent,	1887
	Thomson, Dr J. Stitt, Greetwell Road, Lincoln,	1877
	Thomson, Dr T. J., 31 Morningside Road,	1902
	Thyne, Dr T. J., 16 Randolph Crescent,	1887
	Tod, Dr John, 69 Ferry Road, Leith,	1892
430	Tough, Dr F. W. K., 17 East Hermitage Place, Leith,	1901
	Tristan, Dr R. J., 28 Carolgate, Retford, Notts,	1887
	Underhill, Dr C. E., 8 Coates Crescent,	1872
	Underhill, Dr Frederick T., 1373 Barclay Street, Vancouver, British Columbia,	1885
	Underhill, Dr T. Edgar, Dunedin, Barnt Green, Worcestershire,	1879
435	Vassie, Dr Alexander H., 98 Priory Road, West Hampstead, London, N.W.,	1891
	Vickery, Dr W. H., 1 Bristol Terrace, Beech Grove, Newcastle-on-Tyne,	1892
	Wade, Dr George, Melrose,	1893
	Wallace, Dr Abraham, 39 Harley Street, London, W.,	1879
	Watson, Dr B. P., Serpentine Villa, Largo, Fife,	1902
440	Watson, Dr Douglas Chalmers, 22 Coates Crescent,	1897
	Watson, Dr P. H., 2 Victoria Square, Newcastle-on-Tyne,	1887
	Watson, Dr R. H., 17 Glengyle Terrace	1896
	Waugh, Dr John, 36 Finsbury Pavement, London, E.C.,	1881
	Webster, Dr A. D., 5 Blacket Avenue	1881
445	Webster, Prof. J. C., 706 Reliance Building, 100 State Street, Chicago, U.S.A.,	1889
	White, Dr A. L., Belhaven Villa, North Berwick,	1903
	Whyte, Dr J. Curtis, Stonefield, Canaan Lane,	1896
	Wilcockson, Dr G. Morton, Whitley Cross, Reading,	1893
	Wilkie, Dr James, Selville House, Portobello,	1897
450	Wilkinson, Dr George, 3 Dingle Hill, Liverpool, S.,	1889
	Will, Dr J. C. Ogilvie, 17 Bon-Accord Square, Aberdeen,	1867
	Willcox, Dr F. Mayes, 8 Strathearn Road,	1902
	Wilson, Dr James, 53 Inverleith Row,	1889
	Wilson, Dr T. D., 10 Newington Road,	1879
455	Wise, Dr Robert, 5 Weston Park, Crouch End, London, N.,	1890
	Wood, Dr Thomas, 182 Ferry Road,	1886
	Wood, Dr William, 5 Roxburgh Street,	1892
	Woodside, Dr J. T., 5 Roden Ter., Woodstock, Belfast,	1898
	Wright, Dr W. F., Bonnington Mount, Bonnington Terrace,	1887
460	Yoe, Dr Richard T., 2103 Floyd Street, Louisville, Kentucky, U.S.A.,	1891
	Young, Dr H. C. Taylor, 209 Macquarie Street, Sydney, New South Wales,	1900
	Young, Dr Peter A., 25 Manor Place,	1871

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TRANSACTIONS

BOSTON MEDICAL LIBRARY NOV 23 1904

OF THE EDINBURGH OBSTETRICAL SOCIETY,

FOR SESSION LXV., 1903-1904.

MEETING I.—NOVEMBER 7, 1903.

DR JAMES RITCHIE, *President, in the Chair.*

I. *The Treasurer* (*Dr Wm. Craig*) made his Annual Statement, which is given below:—

INCOME.						
Balance from Session 1901-1902,					£480	1 8
Arrears,	£6	10	0			
Bank Interest on Deposit Receipts,	6	14	4			
Interest on Consols,	6	6	2			
Entrance Fees from 21 new Ordinary Fellows,	22	1	0			
Annual Contributions from 378 Ordinary Fellows,	94	10	0			
Composition for Life-Membership from Seven Ordinary Fellows,	36	15	0			
Transactions sold,	7	9	5			
					180	5 11
					£660	7 7
EXPENDITURE.						
Royal Medical Benevolent College,	£5	5	0			
Bank Cheque-Book,	0	2	6			
Dr Graham, Shorthand Reporter,	6	6	0			
Commission to Collector,	1	11	0			
Baird's Account,	2	15	6			
Door-keeper's Salary,	1	8	0			
Oliver & Boyd's Account for Vol. XXVIII. of Society's Transactions (506 copies),	95	14	6			
Oliver & Boyd's Account for Printing Billets, Postages, etc.,	25	10	6			
Rent of Rooms,	4	8	6			
Waterston & Sons' Account,	2	16	0			
The Secretaries and Editor for Postages,	0	12	6			
					£146	10 0
Balance to New Account,[1]					513	17 7
					£660	7 7

[1] Of this Balance the sum of £250, 10s. 6d. is invested in 2½ per cent. Consols.

The accounts were audited by *Dr Keppie Paterson* and *Dr J. W. Ballantyne*, and found correct.

Professor Simpson proposed a hearty vote of thanks to the Treasurer, which was unanimously accorded.

II. The Society then proceeded to the election of Office-bearers for the present session, and the President announced the result as follows:—*President*, Dr N. T. Brewis; *Vice-Presidents* (*Senior*), Professor Simpson; (*Junior*), Professor Kynoch, Dundee; *Treasurer*, Dr Wm. Craig; *Secretaries*, Dr Wm. Fordyce and Dr Lamond Lackie; *Librarian*, Dr Haultain; *Editor of Transactions*, Dr Lamond Lackie; *Members of Council*, Sir Halliday Croom, Dr Michael Dewar, Dr Matheson Cullen, Dr Moorhouse (Stirling), Dr James Ritchie, Dr J. W. Ballantyne, Professor Jardine (Glasgow), and Dr Aitchison Robertson.

III. The following gentlemen were elected Ordinary Fellows of the Society:—D. G. MacArthur, M.D., Fort-William; Henry Stumbles, M.B., Ch.B., Amble House, Amble, Northumberland; G. J. Farie, M.B., Ch.B., Strathallan House, Bridge-of-Allan; C. R. Gibson, M.A., M.B., Ch.B., Sarkbank, Gretna, Carlisle; J. M. Kirkness, M.B., Ch.B., 14 Dalkeith Road, Edinburgh.

IV. VALEDICTORY ADDRESS.

By James Ritchie, M.D., M.R.C.S.Eng.; F.R.C.S.Ed., etc.

Ladies and Gentlemen,—Fellows of the Edinburgh Obstetrical Society,—Two years in prospect seem a somewhat long extent of time, but when that period is past with all its opportunities it fills a much smaller space in our mental vision. At the time when, two years ago, you conferred on me the great honour of placing me in this chair, I entered on its duties with a consider-

able amount of diffidence, which was, however, to some extent lessened by the knowledge that I might confidently expect your forbearance, and that I would have the assistance of able men in the secretariat. My expectations in these respects have been abundantly fulfilled. I thank you for your indulgent consideration, which has rendered my duties the source of so much pleasure to me. In your name I thank our Secretaries—Drs Wm. Fordyce and J. Lamond Lackie—for the care with which they have fostered the interests of the Society; on them rests the responsibility of providing for us, and to them belongs the credit for the success of the arrangements. I desire also to acknowledge my personal obligation to them for the willing and able help and guidance which they invariably afforded me.

I trust that our Treasurer—Dr Wm. Craig—will not consider the thanks which we yearly accord him a merely formal vote. They are but an imperfect expression of a deep feeling of gratitude. The balance at the credit of the Society when he, twenty-seven years ago, became our Treasurer was £20, 12s. 11d.; now it amounts to £513, 17s. 7d. It is to Dr Craig's initiative that the Society is indebted for the present form of our Transactions, and because of our Transactions we have so great an increase in the number of our Fellows. At the time when, in 1877-78, the Society issued its first annual volume of Transactions in paper cover, the number of Ordinary Fellows was 116; three years later, when at Dr Craig's suggestion the Society resolved to issue a bound volume in the form in which it still appears, the number was 164; now the number of Ordinary Fellows is 449.

To Dr Lamond Lackie—the Editor of our Transactions—we render hearty thanks for the volume which, after a year's gestation, he has delivered to us. It does credit to its parents. I hope that the Fellows are sufficiently grateful to the Editor for having taken on himself the pains involved in the revision of the reports of discussions.

The temporary change of our place of meeting, consequent on alterations in the premises at 5 St Andrew Square, again brings before us the desirability of the Scientific Societies in Edinburgh combining to provide a home common to them all, with a common hall, and independent chambers for libraries, etc., belonging to the different societies. The difficulty of realisation is mainly a financial one.

Although on looking back to November two years ago the time seems short; when we begin to analyse the large amount of work which has been submitted to our Society, and when we consider the blanks in our list of Fellows, we realise that the period is not so short as at first sight it appeared.

During the period involved, our death-roll has been large, viz., 24 (five Honorary, nine Corresponding, and seven Ordinary Fellows)—the same number as Sir Halliday Croom reported in 1899. He then stated that the death-roll was larger than during any other similar period of the Society's history. At that time the total number on our roll was 525; now it is 567.

We miss from our roll of Honorary Fellows the name of one who did much to advance obstetrics and gynæcology in America, a man who had a strong personality and a strong following—Paul Fortunatus Mundé, Professor of Gynæcology in Dartmouth College. He died at New York in 1902, at the comparatively early age of 56. He was a man of great courage, of high ideals, and had the desire to do his work thoroughly. Although he was born in Dresden, Saxony, he was educated in America, his father having had to flee from his native land because of his political activity. Paul Mundé, after graduating with high honours at Harvard, went to Germany to continue his medical education. In the Austro-Prussian War he served as a surgeon against Prussia, but in the Franco-Prussian War on the side of Prussia, and in the interval between these campaigns he was resident in the Würzburg Maternity Hospital for three years, and assistant to Scanzoni.

At the siege of Paris he had equipped a field hospital, and on returning to it one morning he found it in flames. On learning that the escape of two patients had been cut off by the fire, he plunged into the building and succeeded in rescuing both of them. For this heroism he received the Iron Cross from the Emperor of Germany. After the fall of Paris he studied at Heidelberg, Berlin, Vienna, London, Edinburgh, and Paris, then took up his abode in New York, where he exerted a great influence on the study and advance of gynæcology. As editor of the *American Journal of Obstetrics* he made it a great success. He was one of the founders of the American Gynæcological Society, and later its secretary, then its president. He wrote a large number of articles on Obstetrics and Gynæcology, also one work on Minor Surgical Gynæcology. During session 1877-78 he made a communication to our Society on the dull wire curette in gynæcological practice.

We also miss from the list of our Honorary Fellows the name of Eduardo Porro, a name which, since 1876, has been associated with one of the operations for hysterectomy. Although Porro's operation is now rarely the one of choice, unless time be of importance, its introduction marks an era, and its success did much for the advance of obstetrics and gynæcology in Italy. Like many others in our profession, his early life was marked by pecuniary embarrassment. At the age of 23 he obtained his medical diploma at Pavia, and the following year he volunteered under Garibaldi in the cause of Italian unity. After the fall of Mentana, he was appointed assistant in Obstetrics in one of the hospitals of Milan, and for the next seven years he continued there, industrious, exact, and energetic, in the study of obstetrics and gynæcology. In 1875, solely because of merit, he was appointed Professor of Obstetrics in the University of Pavia. He was much impressed by the serious difficulties which sometimes arise when fibroids obstruct labour, and during 1874-75 he made many experiments in

removing the uterus of pregnant rabbits; he also practised hysterectomy on the cadaver. On 21st May 1876, he for the first time performed on the living subject the operation with which his name was afterwards associated. It was entirely successful both as to mother and child. In 1882, after seven years' incumbency, Porro resigned his chair in Pavia and returned to Milan as Director of the Maternity Hospital. He devoted much time to sanitary and medico-legal work, and effected many improvements in the sanitation of hospitals. He published many papers on obstetrical and gynæcological subjects. It has been remarked that, although he had an enormous clientele, he did very few operations, the reason assigned being that he looked more to future than to immediate results. In 1891 he was elevated to the dignity of Senator. In 1901, the 25th anniversary of Porro's first hysterectomy, a medal was struck in commemoration, and Professor Truzzi was entrusted with the compilation of a record of all Porro operations performed throughout the world up to 21st May 1901. The scene on the streets of Milan on the day of Porro's funeral is said to have afforded a wonderful testimony to the affection and respect in which he was held.

The next name which no longer appears on our list of Honorary Fellows is one which used often to be named in association with Porro's, the name of one who introduced improvements in the technique of many gynæcological operations—Max Sänger. He graduated at Leipzig in 1876. Two years later he was appointed assistant at the Gynæcological Clinic of the University of Leipzig, where he enjoyed exceptional advantages under Credé, whose pupil he was, and who, from 1884 to 1887, allowed him to do major operations at the Clinic. After having been Privat-docent and Extraordinary Professor at Leipzig, he was in 1891 called to Prague as Ordinary Professor of Obstetrics and Gynæcology. He gained a great reputation as a clinician, and it is said that he did not

neglect even very small symptoms. He was a good operator, and was very careful as to asepsis; he is said also to have had the faculty of finding valuable practical help from theoretical considerations. Although his method of suture of the uterus in Cæsarean section was discontinued because it was too complicated, he extended the indications for the conservative operation. He was one of the first to use ventrofixation of the uterus in retroflexion, and one of the first to recognise the dangers during the puerperium to women infected by gonorrhœa. He was a very voluminous writer. He did much investigation in connection with tumours of the uterine adnexa. His early death on 12th January 1903, at the age of 50, is a serious loss to obstetrics and gynæcology.

In 1882 we elected as an Honorary Fellow of our Society, T. Galliard Thomas, a man who had gained for himself a great reputation, especially in relation to gynæcology, to whom, along with Marion Sims, belongs the credit of establishing as a science the study and practice of gynæcology in America. In 1852 Galliard Thomas landed in New York at the age of 20. He had little money, few acquaintances, and no friends, but he had an M.D. diploma, and he was full of enthusiasm for his profession, and had the determination to do great things. After having, with great credit, filled the office of Resident in Bellevue Fever Hospital, he came to Europe and gave special attention to obstetrics at the Rotunda Hospital, Dublin, and after eighteen months he returned to New York. He had the good fortune to be taken into partnership by the leading practitioner in that city. He began to lecture on obstetrics. His first lecture was a failure. He recognised the cause, studied English literature, and delivered his lectures before a mirror in his own room. He attained the greatest success, and later he was described as the greatest medical orator of his time. In 1863 he was appointed Professor of Obstetrics and Diseases of Women and Children at the College of Physicians and Surgeons, which office he held

until the work was divided. He was then appointed Professor of Gynæcology, and he specialised in that department. He was one of the founders of the American Society of Gynæcology. He published a considerable number of articles on gynæcological and abdominal surgery, and in 1869 he published *A Practical Treatise on the Diseases of Women*, which passed through five editions, and a sixth edition was revised by Paul Mundé, another of our Honorary Fellows, to whom reference has already been made. He retained his enthusiasm even to advanced years; he kept himself abreast of the progress of the times, but he accepted only that which, after investigation, satisfied his judgment. On 21st November 1901 there was a great gathering of eminent gynæcologists in New York in honour of Gaillard Thomas's 70th birthday, and the 50th anniversary of his entrance to the medical profession. He received a great ovation, and a large number of telegrams and addresses from scientific societies and the savants of Europe and America. He died suddenly on 28th February 1903.

Another of our Honorary Fellows, Professor William Smoult Playfair, died at St Andrews on 13th August 1903. He was a member of a distinguished St Andrews family, and a brother of Lord Playfair, who, when Professor of Chemistry in Edinburgh University, stood high in the regard of his students. Professor William Smoult Playfair studied in Edinburgh at the same time as our friend Professor Simpson. In virtue of his ability as an obstetrician, he acquired an extensive practice, and had the honour of attending the Duchess of Edinburgh, the Duchess of Connaught, and other ladies of high position. His treatise on *The Science and Practice of Midwifery* has had a very wide circulation, and has been translated into several foreign languages. During the twenty-five years he was Professor of Obstetrics at King's College, London, he imparted a knowledge of his science to a large number of those who are now in active practice. He was

co-editor with Professor Clifford Allbutt of a *System of Gynæcology*. His experience in the Law Courts, in consequence of an alleged breach of professional confidence, impressed upon medical men the importance of avoiding reference in the family circle to their patients' ailments.

During the past two years we have lost by death no fewer than nine Corresponding Fellows, viz., during 1902: Dr Jn. Boyd, Slamannan; Dr F. G. Figg, Australia; Dr T. More Madden, Dublin; and Dr David Murray, London; during 1903: Dr Hartmann, St Petersburg; Professor Hubbard, Connecticut; Professor Krassowski, St Petersburg; Dr Ropes, Boston, U.S.A.; and Dr Geo. W. Balfour, Edinburgh. Of these I shall make special reference to two only, viz.:—

Dr Thomas More Madden, F.R.C.S.Ed., who died in Dublin at the age of 64, was elected a Corresponding Fellow of this Society in 1871. He settled in Dublin in 1868. After having served as Assistant in the Rotunda Lying-in Hospital, he was appointed Obstetric Physician to the Mater Misericordiae Hospital, an appointment which he continued to hold up to the time of his death. He was also for many years Consulting Physician to the Temple Street Hospital for Sick Children. He expressed strong views on the neglect of physical culture in children, and on the effects produced in them by the indiscriminate use of alcohol. In 1870 he made a communication to our Society on the immediate treatment of laceration of the perinæum. He made many contributions to medical literature, and received numerous recognitions of his work from medical and other learned societies.

As a physician, Dr George William Balfour held a position in the first rank. He was elected a Fellow of this Society in 1847. There are still alive two veterans who were elected at an earlier date than he, viz., Dr Alexander Peddie in 1840, and Dr George Keith in 1845. Dr Balfour was elected a Corresponding Fellow in 1898, the year in which he relin-

quished practice and retired to Colinton, the home of his boyhood. He died there in August 1903. Although he was somewhat delicate in his early years, he reached the age of 80. Probably his daily walk from Colinton to school in Edinburgh helped to remove his earlier delicacy. After graduating he went to Vienna, where he studied under Skoda, and brought back with him new ideas as to exactness in physical diagnosis, and also as to the power of the *vis medicatrix naturae*, and he based on this his strenuous opposition to the older methods of treating acute diseases. He took an active interest in questions relating to medical education, especially the medical education of women. He held many important offices, and had bestowed on him well-merited distinctions. Although he did not in the memory of our present Fellows take any active interest in the work of our Society, he will be much missed by the senior Fellows at least. We had pleasure from his lectures, from his books, and in our friendly relations with him. He was also a trusted adviser, especially in difficult heart cases.

Of Ordinary Fellows we have lost seven, viz., in 1902: Dr R. Peel Ritchie, Edinburgh; Dr Arthur Oakes, Bexhill-on-Sea; Dr Walter Scott Gibson, London; Dr Robert Mair, Hawick; in 1903: Dr Stewart Stirling, Edinburgh; Dr W. B. Macdonald, Dunbar; and Jn. A. Robertson, Matjesfontein, So. Africa.

Dr R. Peel Ritchie was born and educated in Edinburgh. After graduation he was Resident Physician in the Bethnal House Asylum, London, and thereafter he began practice in Edinburgh. He was specially interested in midwifery and in the diseases of children. For many years he was one of the Physicians to the Royal Hospital for Sick Children. He was elected a Fellow of this Society in 1861, and for a long period he took an active part in its work. He was Secretary from 1865 to 1873; on two different occasions, viz., 1874-75 and

1878-79, he was a Vice-President; and he edited the first four volumes of our Transactions, containing a record of our proceedings from 1868-69 to 1876-77. The earlier volume he edited in conjunction with the late Dr James Young, and the last one along with Dr Underhill. In 1871 he read three papers at our meetings, but since 1880 he did not take any active part in our work. He occupied several positions of responsibility in our city; in the Royal College of Physicians he was for many years Treasurer, and afterwards he was raised to the honourable position of President.

Most of those whom we have no longer on our roll it has been possible for me only to mention by name, but although, whether from want of opportunity, or from lack of originality, or from engrossment in the work of ordinary practice, they did not stand out prominently among their fellows, and their names are not written large in the annals of our science, it by no means follows that they lived less useful lives. I do not know of any sphere of life in which there are greater possibilities of usefulness to mankind than that which is afforded by the practice of medicine.

While our Society is poorer by the loss of so many men, including those eminent in their profession, who had done much for the advancement of science and for the relief of the troubles of womankind, we are richer by the addition of six Honorary Fellows and forty-three Ordinary Fellows (in 1902 two Honorary and twenty-two Ordinary, and in 1903 four Honorary and twenty-one Ordinary Fellows). The number of Ordinary Fellows added during the previous two years was forty-nine, six more than during the later period. The net increase in the number of Ordinary Fellows during the past two years is twenty-two. The total number of Ordinary Fellows on roll is 449.

The last two sessions have not fallen behind many of those which preceded them in the value and interest of specimens and

papers submitted, and the Society may be congratulated on the interest taken in its work, as evidenced by the attendances at the meetings and by the number of Fellows who took an active part in them. During the session 1901-2, five non-resident Fellows made communications to the Society, and during the last session we had the pleasure of listening to no fewer than nine papers by non-resident Fellows. It is also full of promise for our future that so many of the younger Fellows have taken an active part in the business.

Before giving a short summary of our work, I desire to refer to a subject which is of very great importance to the Edinburgh Medical School. You doubtless remember that Dr Milne Murray, in his valedictory address, referred to various difficulties in the carrying on, in a continuously satisfactory manner, the work in the Maternity Hospital, and he made certain suggestions which, he thought, might conduce to the removal of these; he also made proposals as to the better education of students in Obstetrics. These matters were submitted to your Council. Two meetings were held, and after careful consideration a few suggestions were submitted to the Medical Staff of the Maternity Hospital in relation to the former subject; the Council felt, however, that they had no power to deal with the other question. Now, whether it be by the establishment of a residence for students during their practical training in Obstetrics, or by that and other methods to bring us into line with other centres of education, it is important that something be done to retain in Edinburgh some of the more eager students who seek their practical obstetric training elsewhere. There always have been, and there will continue to be, men who desire to take part of their training in another school, and it is well that they should have their experience enlarged by this means; but the migration to which I refer, takes origin in consequence of what are considered by the students to be imperfections in practical training in this department in Edinburgh.

The mention of Dr Milne Murray's name constrains me to express our sympathy with him because of his prolonged illness, our great regret that we have not had the benefit of his presence and counsel at our meetings, and our earnest hope that he may soon be restored to health.

The exhibition of pathological specimens has, as in past years, proved a most important and instructive part of our work. The method of exhibition hitherto followed required divided attention—listening to the description of one specimen, and at the same time endeavouring to make the examination of another; furthermore, by the time any Fellow had examined any specimen the opportunity for obtaining further information, if such were desired, had passed. In order to avoid these difficulties, and at the same time to enable much valuable material to be of greater use, the Council has resolved that pathological specimens should be exhibited as card-specimens at a quarter before eight o'clock; but Fellows exhibiting these specimens may describe them at the beginning of the meetings as hitherto, and all specimens exhibited may be made the subject of discussion as heretofore, with the further advantage of increased facilities for the examination of them previously.

However great the value of the specimens which we saw during the past two sessions, it would be tiresome to you were I to attempt any detailed review of them. It is an advantage that by the formalin method we have the natural form and colour so much better preserved than by any former method. We saw several specimens of the cervix uteri beautifully preserved in this way. It is an area which is as yet one of the regions of difficulty of diagnosis. The work done by our Fellows in relation to it marks an advance in our knowledge of it.

Of cancer of the uterus we had many specimens. One evening no fewer than four in which vaginal hysterectomy had been performed for cancer (Croom).

A large number of examples of fibro-myomata of the uterus presented peculiar points of interest in relation to size, position, character of growth, degenerations and other changes. For example, one fibroid weighed 52 lbs., one fibroid was complicated with ovarian cyst and umbilical cyst (both Professor Simpson), in two the cervix was seriously involved (Haultain), others were soft (Lackie), one was vascular and œdematous (Fordyce), one was calcified (Haultain), others were associated with sarcoma (Scott Macgregor) or with cancer (Haultain). A fibroid in a case of seven months' pregnancy was removed by Porro-Cæsarean section (Sir Halliday Croom). In some instances the fibroid alone was removed, two of them during pregnancy, without interrupting it. We saw one large fibroid which was removed four years after oöphorectomy had been performed (Croom), and one fibroid uterus which had to be removed after electrical treatment had failed (Haultain). We also saw two fibroids which had originated in the broad ligament.

Of the Fallopian tubes we saw specimens of various diseases affecting one or both sides, also a rare specimen of concretion from a tube.

Of ovarian disease we saw many examples, cystic and solid, also malignant disease. In some cases both ovaries were cystic, and it was noted that in one case the sister also had both ovaries removed for cystic disease. We saw also one case of ovarian cyst with double pyosalpinx which had ruptured into the bowel.

The accounts given with many of the cases reminded us that in opening the abdomen it is necessary that the operator be prepared for all kinds of emergencies, and that it is occasionally necessary to do a much more extensive operation than was anticipated.

Of specimens related to pregnancy we saw one very interesting early pregnancy with two chorionic sacs of apparently

the same age, also a case of placenta prævia at the seventh month. We had presented to us many specimens of ectopic gestation, some of them associated with other peculiarities of tubes or of ovary, and one in association with a parovarian tumour.

Dr Munro Kerr added one more to the slowly increasing number of examples of primary ovarian pregnancy. One specimen of ectopic gestation was the second occurrence in the same patient within a year (Haultain). It seemed to be the general opinion that, in cases of ectopic gestation not diagnosed before rupture, it is prudent to wait until the patient has recovered from the shock at the time of rupture, and to operate as soon as possible thereafter.

The Society had also presented to it many examples of developmental peculiarities of the fœtus. One in particular, exhibited by Dr J. W. Ballantyne, showed an exceptionally large number of abnormalities.

There were also shown some specimens of calculi from pelvis of kidney, two tubercular kidneys (Berry Hart), and one very large kidney weighing 42 lbs. which consisted mainly of inspissated pus (Brewis).

Of new instruments, three were exhibited. Thumin's angiotribe, a cephalometer for antenatal mensuration, and Bossi's dilator, which has already proved a valuable instrument in the hands of several of our Fellows.

We had the privilege of listening to a large number of papers, which I may without any figure of speech characterise as very interesting and important, some of them clinical, some more purely scientific. While the former may sometimes be considered to be of more immediate practical value, we must remember that many of our most important advances in practice have arisen directly from what at first sight seemed to be purely scientific investigations calculated to lend themselves only to academic discussion. Both classes of

communications are of great importance to such a society as ours is.

It may not be uninteresting to the Society to have recalled briefly the subjects and some of the most important points brought under our notice in these communications.

The importance of estimating the relative size of the fœtal head and the maternal pelvis in medium degrees of pelvic deformity was discussed by Dr Munro Kerr, and he described his mode of combining the methods of Müller and Pinard, whereby the examiner is able to make the investigation unaided. It is difficult to estimate the direction and amount of force used by an assistant.

A record of experimental measurements of the pelvis by Dr Sandstein showed in what direction the pubic segments move after symphysotomy; he explained the cause of the movements in these directions, and the gain in size at the brim in consequence of each movement. He also referred indirectly to the advantage gained by the Walcher position.

Dr Michael Dewar, who has had a large experience in midwifery, gave us his views on the use and abuse of forceps in general practice. He showed that, while meddlesome midwifery is bad, there is considerable advantage to both mother and child if forceps be used when there is undue delay in progress.

Sometimes, in order to save life, it is necessary to undertake serious operative interference in unfavourable surroundings. Dr Buist gave us his experience of the difficulties of performing symphysotomy in private dwellings. He did three cases under trying and unfavourable conditions and two in the Maternity Hospital, Dundee. These were all in a class of patient in which the prospect of life for a premature child is not good. In one case the child was dead-born, because the membranes had ruptured two days before Dr Buist was sent for. The other cases were all successful. On the first occasion he did

Frank's operation, on the succeeding ones Ayre's subcutaneous operation.

Records of two rare cases were presented. One by Dr Haultain, the expulsion of a dermoid ovarian cyst, *per vaginam* during labour, and he discussed the treatment which should be adopted in cases of labour obstructed by intra-pelvic ovarian tumour, recommending reposition if possible, and removal by operation within twenty-four hours after labour was completed; if reposition were impossible, removal at once *per vaginam.* The other case was reported by Dr Milne Murray, viz., the spontaneous rupture of an apparently normal uterus at the commencement of labour. This appeared to be a very unpromising case for operation, because of the feeble condition of the woman; the result, however, was satisfactory. This case, along with others which we had before us, stands in wonderful contrast to the results of a large number of laparotomies which were done before the introduction of an aseptic system of surgery. Dr Milne Murray did not, in his case, spend much time on the toilette of the peritoneal cavity, even although the viscera were stained by meconium, trusting to the influence of the peritoneum when an aseptic method was followed. He had in his favour the circumstance that the rupture took place at the commencement of labour and not at some time after the rupture of membranes, nor after the use of forceps.

Dr Berry Hart described a rare case of full-time intact extra-peritoneal gestation which he had successfully removed after it had been retained five years.

Dr Lackie recorded six cases illustrating different causes of fever during the puerperium not directly due to the confinement, which nevertheless presented difficulties in diagnosis, and caused some anxiety at the time. The details of these cases met with a sympathetic hearing.

Albuminuria, eclampsia, and the auto-intoxications of pregnancy were the subject of five papers. The prophylaxis and

treatment were carefully considered and the use of thyroid extract was advocated. In the treatment of two cases, the advantage of Bossi's dilator was recorded. The etiology of the albuminuria of pregnancy has yet to be solved; its study has been hindered by the failure to differentiate the various causes of albumin in the urine in different cases, and also because many have failed to realise which symptoms are essential and which are accidental in its course.

Dr Munro Kerr presented a paper on the third stage of labour in the light of observations made during Cæsarean section. Dr Munro Kerr observed a separation of the two walls during contraction of the uterus. The question arose as to how far one may apply observations on phenomena observed in an opened uterus in explanation of those which take place in the uterus when it is entire.

In July 1902, at a joint meeting with the Obstetrical and Gynæcological Society of Glasgow, which was held in Edinburgh, we had a valuable discussion on *Hæmorrhage during the later months of Pregnancy and early stages of Labour.* The questions in relation thereto were submitted in a very lucid and systematic paper by Professor Jardine—late President of the Glasgow Society—and a large number of the Fellows of both societies contributed to the discussion.

Dr Berry Hart read a paper on the nature of the tuberose mole. He believes that it is caused by an undue blocking of the serotinal sinuses in the large celled layer, and that in consequence of this extensive blocking there is the death of the fœtus. The death of the fœtus is secondary.

Dr Berry Hart also made a communication on the relation of hydatid mole to deciduoma malignum, or as he would prefer to call it, metastatic mole, but which I think we may now safely call chorioepithelioma. Dr Hart in a former paper attributed hydatid mole to the primary death of the fœtus before the development of the thyroid. He believes, that in consequence

of the absence of thyroid secretion, chorionic tissues remain an undifferentiated tissue; that syncytium and Langhans' layer retain their destructive activity; and that if part of the mole be retained its phagocytic power continues; that it penetrates blood-vessels and produces metastases. He discussed whether it were possible by examination of a mole to foretell whether metastatic mole would ultimately develop, and decided in the negative. The discussion led to the conclusion that if large syncytial masses were found at a second curetting the uterus should be removed.

Great improvements have of late years been accomplished in abdominal surgery. The comparative safety with which the abdomen can be opened led to a considerable increase in exploratory operations. Professor Fehling—one of our Honorary Fellows—in a valuable paper sounded a note of warning lest the facility of exploratory operations should diminish the cultivation of and care in the use of other methods of diagnosis. He advocated strongly that gynæcologists should endeavour further to develop non-operative methods of diagnosis. I suppose that we all agree with Professor Fehling. At the same time, independently of exploratory operations, the power of diagnosing abdominal disease is advancing, and although cases of great difficulty are met with, the diseases of abdominal and pelvic organs are much more correctly diagnosed than formerly.

The difficulties of emergencies and accidents during operations on the abdomen have on several occasions been brought before us. Several of these were recorded in an interesting paper by Dr Haig Ferguson. Dr A. E. Morison, Hartlepool, described five cases of abdominal section for emergencies during pregnancy.

Dr Haultain read a paper on the treatment of uterine fibromyomata with a highly satisfactory record of twenty-eight consecutive successful cases of abdominal hysterectomy by the

supravaginal method. This communication was full of interest, not only to those Fellows who undertake operative gynæcology, but to all the Fellows, because a record of this kind enables them to view with less anxiety those cases in which excessive hæmorrhage or serious pressure symptoms are present. We should, however, have discrimination in our recommendations, even in view of so good a record. Symptoms which about the age of forty would lead us to advise operation would not necessarily at the age of fifty call for similar advice.

Dr Brewis' two cases of cancer of the cervix at the fifth month of pregnancy, treated by pan-hysterectomy, showed the advantage of careful diagnosis and treatment as early as possible. In cases of operable cancer discovered during the early months of pregnancy Dr Brewis prefers vaginal hysterectomy; during the later months he was, on the whole, inclined to advise Cæsarean section and pan-hysterectomy; and in cases of advanced cancer, as soon as the child is viable, Cæsarean section and hysterectomy, the diseased cervix to be covered by peritoneum.

The discussion at the joint meeting, which was held last June in Glasgow, on *The Selection of Methods in Abdominal Hysterectomy*, was opened by Dr Howard Kelly of Baltimore—the Honorary President of the Glasgow Society—in a masterly, striking, and clear speech. He spoke strongly in favour of conservatism in dealing with the pelvic organs, and he described various methods of performing hysterectomy and the indications for each. Several Fellows of both societies made important and practical contributions to the discussion.

This meeting and that which was held in Edinburgh in 1902, with the social gathering which followed each of them, were noteworthy, apart from their scientific value, because meetings of that kind permit—

> "Man with brother man to meet,
> And as a brother kindly greet."

They also draw together two societies which are working for the common weal.

Dr D. A. Callender read notes of a case of Epithelioma of the Vulva, a somewhat rare disease.

A case of Papillary Cyst of the Labium Minus was described by Dr Jessie Macgregor. The interest in this case arose mainly in relation to the origin of the growth.

In pediatrics, a subject which is obtaining an increasing amount of attention, especially on the Continent, was brought before the Society by Dr J. W. Ballantyne in a paper on *The Problem of the Immature Infant*, maturity not being determined by age, but by development.

Dr Church, at the last meeting of the Society, submitted a paper on a kindred subject, *The Influence on the Child of the Overlapping of Lactation and Pregnancy*, in which he concluded, from a record of ten cases, that the concurrence is detrimental to all three individuals involved, but specially to the vital power of the child *in utero*.

Dr Angus Macdonald read a paper on *Fatal Tracheal Compression by Enlarged Thyroid in a newly-born infant.*

Acute Pyelitis in the infant—a somewhat uncommon disease —presenting serious symptoms and tedious in its course if not recognised, but very amenable to treatment when diagnosed and suitably treated, formed the subject of an important paper by Dr Jn. Thomson.

The Society had two papers on developmental questions, each of which papers had involved much work and study. One by Dr Berry Hart on *The Development of the Amnion and Cord*, the other by Dr Richard J. A. Berry on the anatomical variations presented by two cases of twin monsters, with an account of their developmental explanation. Dr Berry concluded that bilateral segmentation is unnecessary for the production of twins, but that they may arise from two primitive grooves developed side by side on a single ovum.

And now, Ladies and Gentlemen, I demit the office to which, two years ago, you did me the great honour to elect me. I again thank you for your goodness. I can assure the conscientious and very able man whom you have elected to succeed me, that he will find the duties a source of pleasure to him, and I venture to predict that under his wise guidance the sixty-fifth session of our Society will be a profitable one.

Professor Simpson said that before the President left the Chair, he wished to be allowed to voice the delight they had had in listening to Dr Ritchie's valedictory address, and to express to him the very hearty thanks of the Society for the manner in which he had conducted the business of the Society for the last two sessions. The Society had shown great wisdom in going out of the ranks of the specialists in obstetrics to select Dr Ritchie, whose position in Edinburgh ranked high in the whole realm of medicine. He considered that the interest Dr Ritchie had shown in the work of the Society, and the grasp he had taken of all the subjects brought before them, was both an encouragement and a rebuke to the professed Fellows of that special department of medicine. The President's intelligent guidance of their discussions, and, indeed, of all their work, had been a great help in all the transactions of the Society, and his services had culminated in the extremely interesting address with which they had been entertained that night. He might be allowed to say the obituary references had specially touched him, for almost all the gentlemen Dr Ritchie had named had been personal friends of his own, and two of them —Dr Playfair and Dr Peel Ritchie—were fellow graduates. It made him feel that he should be thankful for the number of young men coming to fill up the ranks of a Society which had been a credit to the city for three generations. The Society

had done admirable work in the past, and he agreed with Dr Ritchie in anticipating it would continue to prosper under the able presidency of their friend, Dr Brewis. He begged to move that they should offer to Dr Ritchie their hearty thanks for all his conduct in the Chair, and for the interesting address with which he had favoured them.

Sir Halliday Croom seconded Professor Simpson's motion most cordially, for he felt that Dr Ritchie had done a great and good work for the Society. Although the address did not admit of criticism, he might be permitted to say that it did honour to Dr Ritchie, and was worthy of the highest traditions of the Society.

The President thanked the Society most heartily.

V. LEUCOCYTOSIS IN PELVIC DISEASE IN THE FEMALE.

By E. Scott Carmichael, M.B., F.R.C.S., Surgical Registrar, Royal Infirmary; formerly Volontär Assistent an der Universitäts Frauenklinik, Greifswald.

This paper is strictly limited to pelvic disease, since time will not permit discussion of the value of leucocytosis in those diseases which so frequently complicate affections of the female genital organs, such as appendicitis, intestinal obstruction, gangrene of the bowel, etc.

The observations were made on cases kindly placed at my disposal by Professor Martin in Greifswald. They were made in the obstetrical and gynæcological wards of the Frauenklinik, where over 180 patients were submitted to a blood examination. Up to the present time most of the observations made as to the value of leucocytosis have been on cases of appendicitis, and it is

only recently by the work of Dützmann that gynæcologists have come to recognise its value.

Without going into methods of blood examination, the cases under consideration were all examined as regards the quantitative change in the white blood corpuscles, and in some doubtful cases a qualitative estimation was also made. Some surgeons are apt to rely entirely on the numerical increase or decrease of the leucocytes, and although this in four-fifths of the cases is sufficient, there are always a small minority of cases where recourse must be had to proportional percentage of the various forms of leucocytes, nor can either of these results be considered as giving an infallible indication for or against abscess formation. It is only by experience of a large number of cases and looking upon the leucocyte examination as one only of many valuable means of diagnosis that most benefit can be derived from its use.

Gulland lays special stress on the value of the qualitative estimation. Most observers will agree with him that in the hands of laboratory experts or those who have considerable experience in the examination of blood films, such an examination affords the most definite information; but in the hands of surgeons or general practitioners a simple quantitative examination, carried out as it is more easily and more quickly than the former, will in over 75 per cent. of cases give as trustworthy results.

If one examines many cases by both methods, one finds that in many of the cases where a quantitative estimation fails to betray pus formation, a qualitative count also fails; a fact borne out by the results of others, such as Longridge.

In the series of cases under consideration, the value of leucocytosis is discussed under three heads:—

1. As a means of diagnosis and differential diagnosis.
2. As an indication for or against operative treatment.
3. As a means of prognosis.

1. *As a Means of Diagnosis and Differential Diagnosis.*

It is in inflammatory disease of the uterus and its appendages that we must look to leucocytosis as of great value, and one cannot over-estimate the importance of its use in all cases of pelvic tumour. In inflammation of the pelvic connective tissue we have in leucocytosis as valuable a guide to the local changes occurring as in cases of appendicitis. Its use is of the greatest importance in the various swellings of the uterine adnexa, more particularly the Fallopian tubes, to differentiate the various forms of sactosalpinx.

Before describing one or two cases illustrative of its use, I would first refer shortly to some of the physiological changes which occur during pregnancy and parturition. Towards the end of pregnancy and during parturition, the leucocytes tend to increase steadily, while during the puerperium there is as steady a decrease in all cases unattended with complications or operative interference. Up to 15,000 is considered within the range of a normal pregnancy by Zangemeister and Wagner. In my own cases no rise above 13,000 was seen, the average increase being up to 10,000 or 11,000. There is a sudden and often marked rise during labour, especially in primiparæ, and from the end of labour onwards there is a steady decrease towards the normal, which ought to be reached well before the end of the first week of the puerperium under physiological conditions. It is important, therefore, to remember that during the puerperium there is a steady decrease of the leucocytes to the normal, and if, having excluded certain physiological causes, a marked leucocytosis is found, some toxæmic condition must be suspected. In the pathological puerperium the changes occurring in puerperal fever are instructive and are well illustrated by the following case.

Frau S., æt. 33, was admitted into the septic ward of the Frauenklinik on 10th January 1903, having given birth to a child

in the country five days previously. Her temperature on admission was 38·6° C., and the leucocyte count was 11,900. I examined the uterine contents bacteriologically, having removed them after the method recommended by Döderlein.

A cover glass preparation and culture gave an almost pure growth of streptococci of virulent type. There was slight resistance in the left parametrium, but no marked exudation.

For six days her temperature remained almost constantly above 40° C., with an occasional remission followed by rigors. The leucocytes varied between 11,900 and 9200. On the sixth day, in the hopes of relieving fever, Professor Martin explored the left parametrium, but failed to find pus. The temperature remained the same, as also the leucocyte count, which on the ninth day was 9900. As the woman was rapidly going down hill, the uterus was extirpated in the hopes of removing the source of infection, but she died four days later, with no relief of the toxæmic symptoms.

FRAU S., æt. 33.

Day of Disease,	1st	4th	5th	6th	8th	10th	11th	14th
Temperature,	101·3	106·7	...	106	...	...	...	106·7
Leucocytes,	11,900	10,700	9200	...	11,400	9900	...	19,200
				(drained)	(uterus extirpated)			(death)

This case shows many interesting points. There was no marked leucocytosis, although the septic infection was a very virulent one. Although the temperature throughout was a high one, the leucocytosis was not correspondingly marked.

In examination of eight other cases of puerperal fever, a leucocytosis higher than 12,000 was never found, unless there was some complication to account for it. When the number rises above this one must always suspect, first, a pelvic exudation going on to suppuration, or some pyæmic condition, with localised abscess formation.

Temperature does not seem to affect the leucocyte number to any marked degree, and it is in examining these cases, and

cases of pelvic exudation, that one is struck with the want of relationship between, and independence of, temperature and leucocytosis. Sometimes at the onset of a puerperal fever there may be a marked initial rise in the leucocytes, corresponding to the initial rise of an appendicitis as observed by Cürschmann.

The following case serves as a contrast one to the last. Frau M. was admitted about the same date as the previous case, both patients lying in the ward at the same time, and having almost identical temperatures, but their course and termination were different.

FRAU M., æt. 31.

Day of Disease,	1st	2nd	3rd	4th	5th	7th	8th	11th
Temperature,	106·6	105·4	104·8	104·2	106·6	...	normal.	...
Leucocytes,	...	...	20,600	25,200	...	21,200	14,100	7200
					(operation)			

On the third day after admission the leucocytes had risen considerably, and continued to rise. On the sixth day a left-sided parametric abscess was incised and drained, after which both temperature and leucocytes fell steadily to the normal.

In this case the temperature and leucocyte curve were almost identical, while in the former case the leucocyte count was a relatively low one as compared with the temperature.

These two cases are fairly typical examples of puerperal septicæmia, in which, in the one case, the disease became a general one, with a relatively low leucocyte count, while in the other it remained localised, giving rise to a local abscess with a high leucocyte count.

The next case is a typical example of the use of the leucocyte count. The case was not one of puerperal origin, but was post-operative, the exudation being left-sided and large. The table will show that a systematic count of the leucocytes was made throughout the case, and that the indication to operation, and subsequent retention on two occasions, was given by the leucocyte count. The temperature also in this case,

though in the first instance raised, gave very little indication of any retention or deficient drainage, and it was only by the increased leucocytosis that insufficient drainage could be suspected.

Another point demonstrated in this case is the fact that the leucocytes did not suddenly fall after the removal of the pus, as one would expect from Cürschmann's results. The fall was in each instance gradual, even delayed for twenty-four hours.

FRAU W.

	Temperature.	Leucocytes.	
1.	F. 98·2	17,700	
2.	F. 98·3	16,600	
3.	F. 98·6	17,100	
4.	F. 98	18,100	Pus spontaneous *per vaginam.*
5.	F. 101	20,000	
6.	F. 99	28,300	+ Incision.
7.	F. 101·4	31,300	
8.	F. 100	26,300	
9.	F. 98·3	21,000	
11.	F. 97·6	15,300	
13.	Normal.	19,900	+ Retention.
14.	„	14,200	
15.	„	17,300	
16.	„	18,600	
18.	„	19,800	+ Retention.
20.	„	18,000	
22.	„	14,300	
24.	„	9,200	
26.			

In still another case, Frau W. was admitted with a septic placenta prævia, and developed a puerperal septicæmia. The course was that of a simple septicæmia until the tenth day, when her leucocytes rose to 17,700, and on the eleventh day to 18,900, on the twelfth to 22,400. The woman was in a semi-delirious condition, and did not complain of pain anywhere. There was no pelvic exudation, and her lungs were healthy.

A thorough examination was made, as some local suppuration was suspected. A swelling of the right knee-joint was discovered, which was incised in the surgical klinik and found to contain sero-pus. In this case, the presence of the focus of suppuration was alone suspected from the leucocyte count.

Many other illustrations might be given, but these are sufficient to illustrate its value; and the subject of puerperal fever may be dismissed by stating that one cannot agree with Zangemeister and Wagner, who consider that leucocytosis is of no importance in that condition, for a systematic examination in all cases of puerperal fever, undoubtedly in many cases may lead to the detection of such conditions as pelvic exudation, pyometra and abscess formation in distant parts of the body.

Before leaving the subject of exudations, I should like to refer to those more chronic forms which are so frequently seen in hospital, and which are so difficult to treat. In this class of case the temperature is generally of very little importance in helping us to diagnose a deep-seated focus of suppuration, and in many of these cases one must hail with gladness suppuration, which is often present without being suspected. Leucocytosis is never so high in this as in the more acute forms, and it is often very difficult to know what amount of leucocytosis indicates suppuration. The more chronic the case, the less marked the leucocytosis, and in many very chronic cases where the abscess cavity is thick-walled, there may be no leucocytosis at all. In several cases in the klinik, pus was present where the leucocytes did not rise above 15,000 to 18,000; and in one chronic case an abscess burst into the rectum when the leucocytes had never risen above 11,000; so that one must attach more importance to a slight rise in the leucocytes in a chronic case, and especially if that rise is a steady and gradual one.

One cannot therefore look upon leucocytosis as an infallible sign of the presence of pus, and the surgeon who does so will

undoubtedly be led into error. It must be taken along with other signs and symptoms, and the more experience one gains in it the greater value it undoubtedly is as an aid to diagnosis.

The second class of cases which I would refer to briefly are tubal affections, and here again leucocytosis is of the greatest value, as it is in these cases that an interesting question presents itself, and that is, what relation leucocytosis has to any particular micro-organism of suppuration. Clinically, dilated tubes, or if one may use the term, sactosalpinx, may be due to inflammatory processes resulting from the streptococcus, gonococcus, tubercle bacillus, with more rarely the bacillus colli communis.

Dützmann, in his paper in the *Monatsschrift für Geburtshülfe* (July 1903), seems to indicate this relationship between the degree of leucocytosis and the kind of organism producing the inflammation. A streptococcal pyosalpinx causes the highest degree of leucocytosis, rising up in many cases to 40,000 per c.cm., resembling the high degree of leucocytosis occurring in an acute appendicitis. Similarly the bacillus colli communis also causes a high degree of leucocytosis.

Passing to the gonorrhœal forms, we find that a gonococcal inflammation only causes a moderate leucocytosis, at highest up to 15,000, and lowest of all in the scale, the tubercle bacillus causes no leucocytosis.

In 7 cases examined in which there was tubercular disease of the Fallopian tubes and pelvic peritonitis, and in 4 of which there was a distinct tubercular pyosalpinx, the leucocytes in none of these cases rose above 9000, and on the average were between 6000 and 7000. In tubercular conditions where the leucocytes rise much above 10,000, one must suspect the possibility of a mixed infection.

Another condition where often much light is thrown upon the diagnosis, is tubal gestation. In ectopic gestation, in 3 cases examined there was no increase in the leucocytes, the numbers being 6100, 8200, and 7100 respectively.

The value of leucocytosis as an aid in diagnosing a streptococcal or gonococcal pyosalpinx from other forms of sactosalpinx, such as tubercular pyosalpinx, hydrosalpinx, or ectopic gestation, cannot be over-estimated.

A paper by Bender has recently appeared in the *Révue de Gynécologie*, where he endeavours to prove or disprove the work of Hayem, who considers that malignant tumours cause a leucocytosis. He examined 23 cases of ovarian cysts, and found that there was a leucocytosis in papillary ovarian cysts, and carcinomatous degenerated tumours.

In my own cases, in which there were 6 ovarian tumours, 4 had a blood-count between 6000 and 9000, 2 showed a slight leucocytosis, in one there being an increase up to 10,600, a part of the tumour being of a carcinomatous nature, in the other the leucocytes reached 11,200 and there were adhesions of the tumour to the abdominal wall of fairly recent peritonitis. In twisting of the pedicle, according to Dūtzmann there is also some leucocytosis. In cases of ovarian tumour where there is much increase in the leucocytes, the cause must be inflammatory rather than malignant in nature.

2. *Leucocytosis as an Indication to Operation.*

Cürschmann in his paper on Appendicitis states that a leucocytosis of 25,000 is diagnostic of suppuration, and that if that number is reached, either transiently or for a certain period, operation is advisable. In the majority of pelvic inflammations, whether of cellulitic or tubal origin, this degree of leucocytosis is only occasionally reached, and the surgeon would fail in his duty to the patient were he to wait till such a specified number were reached. One cannot lay down any hard and fast rule as to the numbers of leucocytes which indicate suppuration, and it is only by practical experience and considering other signs and symptoms, and not relying alone on one leucocyte count,

that we derive greatest help from it. The following points, however, have struck me in examining these cases.

In acute inflammatory conditions there is always a marked rise in the leucocytes along with the rise in temperature at the onset of the disease, and an estimation of the leucocytes alone here may lead the surgeon to operate and fail to find pus, and this emphasises a very important point, which is that one leucocyte count alone is valueless. A systematic examination should always be made every twenty-four hours. If in acute cases after three consecutive examinations made at such an interval, with all fallacies excluded, a leucocyte count remains on each occasion about or above 20,000, or if there is a steady increase towards that number, one is justified in suspecting the presence of pus.

One should not be satisfied with enumerating the leucocytes up to the time of operation, but it is extremely important to gauge the completeness of the drainage of an abscess cavity by a systematic examination after operation, as a rise in the leucocytes after a fall is almost always a sign of bad drainage.

In the more chronic conditions leucocytosis is of great value, though it must not be looked upon as infallible, nor must the degree of leucocytosis be expected to reach that of an acute case. How constantly one sees chronic cellulitic and tubal conditions where pus is present, when the temperature has given no evidence of it. Temperature disappears first, and then leucocytosis, as these inflammatory conditions become more chronic. Therefore in estimating the value of leucocytosis, one must always consider a slight rise of greater significance the more chronic the case is, and it is here that experience alone can guide us. Many very chronic parametric conditions where there is one or even more small abscesses may give no evidence of their presence either by temperature or a rise in the number of leucocytes.

Two such cases serve to illustrate this fact. One was an old

woman over 60 years of age, with obscure symptoms of discomfort and pain in the pelvis, with a thin-walled but somewhat enlarged uterus. The leucocyte count was 6200. Professor Martin on passing the sound through a somewhat atrophic and stenosed cervix liberated a considerable quantity of foul, stinking pus from the body of the uterus which had evidently been there for some time. In another case a chronic cellulitic abscess was opened, where the leucocytes were only slightly over 9000.

In tubal conditions the leucocytosis is a most valuable guide: (1) as to the presence of pus; (2) as to virulence of the organisms; and (3) as to the nature of the operation to be performed. One can only lay down a somewhat general principle as to operative interference in these conditions.

With a high degree of leucocytosis and a tubal swelling, palliative methods, such as drainage of an abscess and operation *per vaginam*, is in most cases to be advised. With slight leucocytosis and a tubal swelling, severer operations such as the removal of the appendages by the abdominal route is justifiable.

Another class of case is that of cancer of the cervix. In most cases where there is much ulceration there is often considerable leucocytosis, and here we cannot be justified in performing, for instance, a total extirpation and exposing the patient to the risk of septic peritonitis, without first having steadily reduced the leucocyte count by cauterisation, the application of antiseptics and douches to the ulcerated surface. It is undoubtedly an important means of estimating in how far we have rendered such a tumour growth, or let us say a fungating submucous polypus, aseptic before operation. The septic absorption in these cases is sufficient to increase the leucocytes up to 12,000 or even more.

Lastly, after severe hæmorrhages, as for instance in uterine fibroids, there is often considerable leucocytosis, and such a leucocytosis should be rather a contra-indication to operation until palliative remedies have reduced the number of leucocytes.

I have not personally seen any marked leucocytosis in hæmorrhage from uterine fibroid.

3. *Leucocytosis in Prognosis.*

Of this I am not from personal experience able to speak, nor do I think in Gynæcology this is of much importance, but those who have observed many cases of appendicitis state that in the fulminating and rapidly fatal varieties there is often no leucocyte rise. A corresponding condition I saw in one severe case of puerperal fever. And it may probably be stated that where the patient is markedly overwhelmed with toxines and there is no leucocytosis, the result is inevitably fatal; and here again one must not be misled in obscure abdominal inflammation by the fact that there is a marked leucopenia in typhoid fever, which must always be excluded in such conditions with decrease in the number of the leucocytes.

In conclusion, we cannot look upon leucocytosis as an infallible aid to our diagnosis, and those who do so are certain to fall into error; but taken along with other signs and symptoms, we cannot over-estimate its value, and every surgeon in a doubtful abdominal or pelvic condition has failed to make a thorough examination of his patient if he omit the leucocyte count; and I believe that it is not too much to state that in every gynæcological case a leucocyte count should be made, as in a small minority of cases unsuspected inflammatory conditions will by its means be betrayed. One cannot also too strongly emphasise the importance of systematic leucocyte estimations both before and after operative treatment.

There is one condition in pregnancy which might be referred to, and that is eclampsia. Personally I have examined one case which so far supports the observations of Dützmann, who considers that a marked leucocytosis is a favourable sign associated with diminution in the eclamptic convulsions, whereas a leucocyte

decrease is associated with increased severity of the attacks, with often a fatal issue.

Again, the gynæcologist who favours extirpation of the uterus in puerperal septicæmia will, no doubt, in a severe case associated with slight leucocytosis or even leucopenia, receive considerable aid in deciding that most difficult of questions, when should he operate. Where in puerperal septicæmia the patient is getting rapidly worse, and is overwhelmed with toxines, and where there is a decreasing leucocyte count, showing that the system is failing to react to the poisons, the time for interference will be indicated for those who consider removal of the local source of infection advisable.

As regards the fallacies, one can only learn these by experience, as many errors in diagnosis are made from expecting too much of the leucocyte count alone.

In the cases recorded no mention is made of the qualitative count. This was made in a small proportion of doubtful cases. In some of these the polymorphonuclear leucocytes were increased, and in three cases of subacute abscess formation betrayed the presence of pus where a quantitative count alone had failed, but in other cases, especially the most chronic forms, this estimation also failed. The qualitative count in a very small percentage of cases gives more information than the quantitative, but there are undoubtedly many cases where it also fails. In all cases examined, physiological variations in the leucocytes due to processes of digestion were avoided by counting the leucocytes at certain specified hours, namely, 11 to 1 midday, and 4 to 6 afternoon. Operative interference *per se*, purgative medicines, anæsthetics and hæmorrhages all cause a more or less temporary leucocytosis, so that all such factors must be remembered to prevent results being rendered fallacious.

Professor Simpson said they had had a very interesting beginning to the new Session. The worthy son of a worthy sire

had opened their proceedings with a paper of high scientific interest, and of much practical value. He felt sure that from that time there would be a much more careful counting of leucocytes in their patients.

They were pleased to see Dr Gulland present. He was an acknowledged authority on all hæmatological questions, and he invited him to offer some remarks upon Dr Carmichael's paper.

Dr Gulland said he had come to listen and to learn, and had hoped to hear the opinion of other members of the Society before himself saying anything.

He wished to be permitted to congratulate the Society on the paper they had just heard. It gave evidence of an immense amount of labour and of a great deal of critical insight and careful judgment.

The main conclusions to which Dr Carmichael had come were those that would commend themselves to every one present. With almost all that Dr Carmichael had said he could heartily agree, but there were one or two statements with which he did not concur, and as Dr Carmichael had laid down his conclusions so clearly, perhaps it would be best to indicate where he did not entirely agree with him. The one question that came up in all these cases was what amount of leucocytes might be taken to indicate suppuration, and what amount to indicate operation. Dr Carmichael had rightly pointed out that there was one rule for the acute cases, and another for the chronic. In the latter nothing could be gathered from the absolute number of leucocytes. There might be a considerable quantity of pus with 6000 leucocytes, or where there was no pus, there might be more than 12,000. No rule, therefore, could be laid down. In acute suppurative conditions his own experience was that a leucocyte count of 20,000 usually means suppuration. Cases in which you would find such a high count except at the time of the initial rise—with-

out suppuration were extremely rare. On the other hand, there was a large number of cases where you obtained a leucocyte count of from 15,000-17,000 or 18,000 perhaps, where the patient was acutely ill, with high temperature, rapid pulse, and with physical signs which might point indefinitely, and where there was much doubt as to the condition. Dr Carmichael said that in such cases the differential count was of comparatively little importance. In his opinion the differential count was far more important than the total count, and of probably equal importance was the iodine, or better, the glycogen reaction. If in a given case he had to choose one method only, he should choose first the differential count; then second, the glycogen reaction; and third, the total leucocyte count. He cited a case in which there was a question whether there was pus present. The patient had been ill for some time, becoming more and more acutely ill; the local signs were extremely doubtful, and the leucocyte count gave 17,000. In the differential count polymorphonuclears were found to be raised from the usual 65-75 per cent. to 85 per cent. The glycogen reaction was intense, indicating marked toxæmia. In this case he had advised the surgeon that pus was probably present, and the surgeon had opened and found foul-smelling pus under high tension. He could cite many other similar cases, and he thought the experience of others would bear out the same conclusion. The leucocyte count was easily made, and in a large number of cases gave positive evidence. But in some the evidence was negative, and in these cases they must have recourse to other methods. Much more skill was required to make the differential count; and to use the glycogen test required much training, but the information from these other tests was in many cases absolutely conclusive. He would refer to one other point. In such a case as that of Frau T., a high degree of toxæmia was present, and he thought that Dr Carmichael would agree with him that it was folly to interfere in such a case. Where

there was general septicæmia and a low leucocyte count it meant that the patient was overwhelmed, and in such a case where there was actually a drop in the number of the leucocytes rather than a rise, it was inviting disaster to operate. In localised suppuration it was usual to find the reverse—viz., a high leucocyte count, a high polymorphonuclear range and marked glycogenic reaction.

Dr Berry Hart said he had seen the value of leucocytosis in many cases, and had benefited from Dr Carmichael's help in some such cases.

Dr J. W. Ballantyne had been interested in Dr Carmichael's paper, and in the references he had made to Bender's work on leucocytosis in cancerous cases. Pozzi and Bender, however, had recently published another article on the same subject. In it an account was given of the examination of the blood in a series of cases of neoplasm of the ovaries. Bender reached the conclusion that the estimation of the leucocytes alone does not lead to a diagnosis of the malignant or non-malignant nature of the tumour, but if there is marked leucocytosis (12,000 to 15,000 whites), associated with a fall of the red corpuscles to 3,500,000 or so, then it is very probable that the growth is cancerous. In some ten cases Bender had been able, by enumerating the whites and the reds and by contrasting the results, to arrive at a correct diagnosis of malignancy; but in one case he had failed, and in that instance it was noteworthy that the tumour was a sarcoma and not a carcinoma. Dr Ballantyne, therefore, thought that if these observations of Bender turned out to be correct, we had in the enumeration of both white and red corpuscles, a valuable test of the malignant nature of any pelvic growth.

Dr Fordyce said he had listened to Dr Carmichael's paper with great interest, and had learned from it much of what he wanted to know regarding this important subject. He asked Dr Carmichael if his observations on the leucocytosis of the

puerperium were in accord with those of others who had worked at this subject. Dr Fordyce had had the pleasure of reading the thesis of his friend, Dr Faulkner, on the Leucocytosis of Pregnancy and the Puerperium, and was under the impression that from a careful study of fifty cases, Dr Faulkner had shown that there was a distinct increase in the normal leucocytosis of pregnancy during labour, but that this was maintained thereafter for the first five or six days of the puerperium. Dr Carmichael, however, had stated that there was a rapid fall in the number of leucocytes immediately labour was over.

Dr Scott Carmichael, in reply, thanked the Society for the kind way in which they had received the paper. He had been very interested in hearing Dr Gulland's remarks in his criticism of the paper. He had not, except in perhaps half a dozen cases, examined the leucocytes qualitatively. The cases he had so examined were those in which there had been a doubt as to whether there was pelvic suppuration. In most of the cases where there was an abscess present, there had been a slight increase of polymorphonuclear leucocytes. With regard to the operation that had been performed in the case of Frau T., it was one of the earlier cases in which an estimation had been made, and the surgeon had been rather sceptical as to the value of leucocytosis, and had reckoned rather on his clinical experience than upon the knowledge that the leucocyte count could afford. It had been an interesting feature of the case that ether had been administered, and that after the operation the leucocytes rose to over 40,000, and never came down to normal. It remained at about 20,000 to the time of death. Dr Ballantyne had referred to Dr Bender's paper on carcinoma. He himself had never enumerated the red corpuscles in any cases of carcinoma, but was of opinion that the leucocyte count afforded no help in the diagnosis of malignancy. Dr Fordyce had referred to Dr Faulkner's thesis. He himself had gathered from a recent perusal of the paper that Dr Faulkner

had reached the same result that he had obtained—that, unless there was some external cause to account for it, the leucocytes diminished steadily after the birth of the child.

MEETING II.—DECEMBER 5, 1903.

Dr N. T. BREWIS, *President, in the Chair.*

I. The following ladies and gentlemen were elected Ordinary Fellows of the Society:—Katherine S. Clark, M.B., Ch.B., Leith Hospital; David Halliday Croom, B.A., M.B., Ch.B., 25 Charlotte Square, Edinburgh; Eleanor Henderson, M.B., Ch.B., Leith Hospital; R. W. Johnstone, M.B., Ch.B., Leith Hospital; J. W. Keay, M.B., Ch.B., 18 Mentone Terrace, Edinburgh; I. C. Keir, M.B., Ch.B., Leith Hospital; A. Grant Macdonald, M.B., C.M., 4 Torphichen Street, Edinburgh; Mabel Ross, M.B., Ch.B., Leith Hospital; C. J. Shaw, M.B., Ch.B., Royal Infirmary, Edinburgh.

II. *The President* said he was very sorry not to have been present when he was elected. He felt very much the honour the Society had bestowed on him. To be made their President was an honour any man might be proud of, for the Society was one of the oldest, if not the very oldest, Obstetrical Society. He had had great diffidence in consenting to be nominated for the office, on account of his unworthiness in the first place, and also from the fact that he was not now an obstetrician, and was, therefore, imperfectly qualified; but he had already experienced the kindness of the Society, and had no doubt that any shortcomings would be met with their generous indulgence.

III. *The President* showed (*a*) FOUR UTERI REMOVED BY

THE ABDOMINAL ROUTE FOR CANCER. In two of the cases the disease was confined to the body, while in the other two the cervix was affected. The appendages were also removed in each case. In one of the cervical cases a large portion of infected cellular tissue was dissected out. (*b*) An example of SARCOMA OF THE CORPUS UTERI of the diffuse form which he had removed by the abdominal route. In this case malignant disease had been diagnosed five years ago by the surgeon who curetted the uterus, but no radical operation was then proposed. Dr Brewis found the disease had extended into the left Fallopian tube. The left ovary was also involved, and likewise one of the appendices epiploicæ which was in contact with the ovary. One enlarged gland was also discovered and removed. (*c*) A DOUBLE INTRALIGAMENTARY OVARIAN TUMOUR removed with the uterus after bisection of the latter.

IV. *Dr Berry Hart* showed SPECIMENS OF FIBRO-MYOMA AND SARCOMA UTERI.

V. *Dr Haig Ferguson* showed (*a*) FIBROID involving the cervix as well as the body of uterus removed by pan-hysterectomy; (*b*) OVARIAN CYSTOMA WITH FALLOPIAN TUBE STRETCHED OVER IT, the tube measuring fully 10 inches, and admitting the passage of a No. 7 bougie.

VI. HYPERTROPHY OF THE FŒTAL THYROID WITH MATERNAL ECLAMPSIA.

By W. E. FOTHERGILL, M.A., B.Sc., M.D., Assistant Physician to the Northern Hospital for Women and Children; Lecturer in Obstetrics in the Owens College; Director of the Clinical Laboratory, Royal Infirmary, Manchester.

THE case now reported presents two features of interest which I am inclined to regard as quite independent of one another. In

the first place, it affords an example of the use of thyroid substance in the management of eclampsia. Secondly, it is one of the five recorded instances of hypertrophy of the thyroid gland in the child following the administration of chlorate of potassium to the mother during pregnancy. Both these matters have recently been considered by the Obstetrical Society of Edinburgh.

Mrs D., aged 37 years, is a short, stout lady, of gouty Derbyshire ancestry. She had a sister who was mentally defective, and died of diabetes; the other members of her family are normal. Her husband's personal and family history are also normal. The patient began to menstruate at the age of 12 years, the function being regular, but accompanied by violent pain. At the age of 18 years she had various manifestations of gout, but her dysmenorrhœa was relieved for a time. In the year 1892, being then 27 years of age, she married, and at once went abroad. She then consulted a number of American and Colonial medical men in various places on account of her dysmenorrhœa, and suffered much from a variety of diagnoses and treatments. She was said to have prolapse, for which pessaries were used; she was curetted, and was once kept on her couch for seven months. She had two early abortions, and a third pregnancy ended at the fourth month in May 1899. She was wearing a Hodge pessary at this time. She menstruated regularly until 30th November 1901, when her fourth pregnancy began. Three months later she had an incomplete abortion, followed by a sharp sapræmic attack. I then saw her for the first time, and removed the infected *débris* of the ovum. A month later I found the uterus normal in size, anteverted, slightly anteflexed and lying rather low in the pelvis. Her Hodge pessary had been replaced, and at her own wish she continued to wear it. She menstruated on 14th April 1902, and then became pregnant for the fifth time. I saw her a month later, and insisted on removing the pessary, instructing

her to support the uterus during the day if necessary by putting one or two small sponges in the vagina. She professed to derive great comfort from the sponges during the early months, and stated that if she omitted to insert them pain and discomfort soon began. Thinking it probable that the repeated abortions were due to placental thrombosis, I prescribed as follows:—

℞	Pot. Chlor.	ʒij.
	Tr. Ferri Perchlor.	ʒij.
	Glycerine	℥ss.
	Inf. Quass.	ad. ℥vj.
Sig.	℥ss. t.i.d. ex. aqua. post. cib.	

This was taken throughout pregnancy, which continued undisturbed, the general health being excellent. The urine was examined several times, the last occasion on which it was quite normal being 3rd December 1902. The patient's thyroid gland, it should be noted, appeared to enlarge to about the usual extent during this pregnancy, but her stoutness rendered difficult any very accurate estimate of its increase.

On 7th December there was slight swelling of the hands and feet, and on the 16th the urine contained 0·2 per cent. of albumen. The patient was ordered to rest on her couch, to confine herself to vegetarian diet, and to take two five-grain tabloids of thyroid substance daily. On 25th December she had a slice of goose and a "crumb" of plum pudding, and the next day was not well. On the 27th she remained in bed suffering from headache and vomiting. On the 29th she passed no urine during the day, and the sickness and headache were worse. In the evening a nurse was sent for, but before she arrived, two prolonged and violent eclamptic seizures occurred. At midnight the patient was semi-comatose. There was no sign of labour. Half a grain of morphia was injected, and heat was applied by means of hot-water bottles until profuse perspiration

occurred. On the 30th she was drowsy and restless, but spoke and swallowed. Vision was impaired. No urine had been passed. Lavage of the rectum was practised, and during the next 24 hours the patient was given three grains of calomel and nine five-grain tabloids of thyroid substance. On the 31st the condition remained unchanged. Rectal lavage was repeated. Seven tabloids of thyroid were given during the day. Urine was passed in the evening, and the condition improved, the patient taking milk and drinking water freely. The improvement was maintained on 1st January. During the afternoon labour began, and at 9 P.M. the head was at the vulva. About an hour later, a little chloroform having been given, the tough perineum was incised on each side after the forceps had been applied to the head. A small female child was then easily delivered. It cried freely immediately, and some venous distension in the neck at once became visible. After the mother had received attention, examination of the child revealed the presence of a large solid tumour representing the whole of the thyroid gland. This was covered by an enormously dilated venous plexus. The head and neck became more and more intensely congested, and it became clear that the circulation, as demanded by pulmonary respiration, could not be established. The child died a few minutes later.

For 24 hours after the completion of labour there was complete anuria, but $1\frac{3}{4}$ pints of urine was passed late at night on 2nd January. During the day the temperature had been normal, and the pulse-rate 140. Thyroid substance was given to the extent of 30 grains. On the 3rd the urine passed amounted to five pints. After 15 grains of thyroid had been given the administration of this substance was stopped. The temperature was normal, the pulse-rate 150. On the 4th the pulse-rate fell to 110, and the urine again amounted to five pints. During the next few days the patient's condition gradually became normal.

FIG. 1.—Thyroid gland with larynx and trachea from before.
Natural size.

FIG. 2.—Thyroid gland with larynx and trachea from behind.
Natural size.

[*Face page* 45.

In the table that follows the urine described for each date was collected during the 24 hours, ending at about 9 P.M. on that date, and not at midnight, as it, strictly speaking, should have been:—

	Quantity in Pints.	Specific Gravity.	Urea in Grains per oz.	Albumen, per cent.	
Dec. 16	4½	1007	3	·2	
„ 19	4½	1008	3	·4	
„ 21	3½	1010	3½	·45	
„ 28	3½	1020	8	·8	
„ 29, 30, and 31	...	...	...	...	48 hours' anuria.
„ 31	2½	1010	3	·8	
Jan. 2	1¾	1010	6	·8	After 24 hours' anuria.
„ 3	5	1010	6	2·0	Bile pigment.
„ 4	4½	1010	7½	1·3	Blood and bile.
„ 5	4½	1010	6	·28	Blood.
„ 6	4¾	1010	5	·25	
„ 8	4	1010	6	·2	
„ 14	3	1020	9½	·1	
„ 20	2½	1015	7	·05	
„ 28	3	1010	4½	·05	

Post-mortem on the Fœtus.—The liver was very large. The head of a femur was divided, and was perfectly normal. When incision was made in the middle line of the neck an enormous quantity of dark, thick blood escaped. The neck and face, which had been very congested, assumed the ordinary colour of a dead baby. To get at the tumour it was necessary to burrow through a thick mass of large blood-vessels, a sort of venous plexus or almost an angioma. The thymus was normal. The thyroid was removed together with the larynx and a few rings of the trachea and the corresponding part of the œsophagus. On carefully dissecting away everything but the gland the weight was reduced to 25·8 grammes. The photographs are natural size and show anterior and posterior views. (See Figs. 1 and 2.) The two lobes were almost equally developed, and the isthmus formed a rounded mass nearly equal in size to one

of the lobes. The lobes embraced the trachea larynx (the thyroid is high up in the fœtus) and œsophagus, almost meeting each other behind the latter. The photograph shows their position slightly separated by dissection.

Sections were made of a portion of one lobe, and as the tumour is quite uniform in consistence the appearances of these sections probably give correctly the histology of the whole. The sections show masses of glandular tissue of varying size, separated by septa of well-formed connective tissue. The blood-vessels are large and numerous. The gland tissue presents a very complex arrangement adenomatous in type. The lumina of the spaces are very small, very complex in outline, and between the layers of epithelial cells lining them there are massed epithelial cells. There is not any colloid material in any of the spaces, and it was remarked when cutting the sections that the tissue did not behave towards the knife in the unkind manner characteristic of thyroid gland. The enlargement of the organ appears to be due to overgrowth of all the tissue elements, especially the glandular elements. There is no suggestion in the appearance of the tissues of any inflammatory process having occurred. The specialisation of the gland has, however, been considerably retarded, for there is in the normal thyroid at birth a considerable amount of colloid substance. The weight of the normal thyroid at birth I find, by repeated observations, to vary between 1 and 2 grammes. Supposing its average weight to be 1·5 grammes, the hypertrophied gland now described therefore weighs about seventeen times more than the normal gland should do. (See Figs. 3 and 4.)

For the student of puerperal eclampsia the case described above is simply an experiment in the use of thyroid substance as urged by Dr Nicholson. The table of urinary analyses certainly shows that the renal excretion improved before the attack came on while the patient was resting on vegetarian food

[Face page 46.

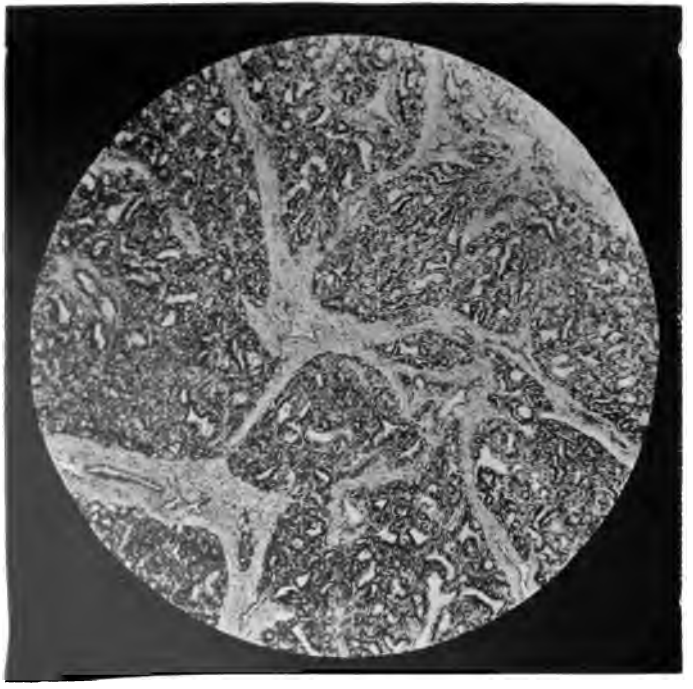

FIG. 3.—Micro-section of thyroid gland. Low power.
(Photographed by Dr Orr.)

FIG. 4.—Micro-section of thyroid gland. High power.
(Photographed by Dr Orr.)

and taking 10 grains of thyroid daily. Further, two periods of anuria, one after the attack and one after the labour, terminated after considerable quantities of thyroid substance had been ingested. It may be said that these were instances of *post hoc* not *propter hoc;* but it may equally reasonably be concluded that the administration of thyroid played a part in the favourable result secured. It may be that had I at first put the patient in bed on milk alone and given more thyroid than I did, she would have been spared the two convulsive attacks which occurred. The impression left upon my own mind takes the form of a determination to give thyroid substance an extended trial in cases of the auto-intoxication of pregnancy.

The case might also be cited as an illustration of the non-obstetric treatment of eclampsia. It has been the custom to regard the emptying of the uterus as an essential part of the treatment of grave cases of eclampsia. Most medical men have a natural and strong leaning towards active interference on the patient's behalf, and, in obstetric work, active treatment usually takes the form of emptying the uterus by one method or another. There is also the dread of allowing a woman to die undelivered. The customary accouchement forcé in eclampsia I believe to be explained by these considerations rather than by any proved advantage resulting from it. For example, a large number of observers are at present recording cases of eclampsia in which the patient has been delivered after the use of Bossi's dilator. Most of the patients recover, but there is nothing whatever to show that they would not have recovered had obstetric interference been omitted. It is indeed reasonable to suppose that certain patients who could have survived the eclamptic attack itself have died under the combined effects of eclampsia and accouchement forcé. While granting that the induction of labour is often desirable in order to prevent an eclamptic attack or its recurrence, I am inclined to believe that labour should not be artificially induced in the presence of

convulsions or coma. If labour begins before or during the attack, it should be conducted with the care and patience which would be shown under more ordinary circumstances, but without unnecessary delay.

A review of the literature of "congenital goitre" in Dr Ballantyne's *Antenatal Pathology* indicates that most of the examples of this condition occur in "goitre districts" and in goitrous families. These "inherited" goitres simply form a part of the subject of ordinary goitre. But in two cases—those of Sir J. Y. Simpson and Professor A. R. Simpson—enlargement of the fœtal thyroid followed the administration of potassium chlorate to the mother during pregnancy. This was the position when I showed my specimen at the Pathological Society of Manchester on 11th March 1903. On the same evening, however, a fourth case was announced for demonstration by Dr Angus Macdonald on the agenda paper of the Edinburgh Obstetrical Society, and on 21st March a fifth case was described in the *British Medical Journal* by Dr Hewetson, of Birmingham. The occurrence of these five cases indicates that, quite apart from what we may call hereditary congenital goitre, a form of enlargement of the fœtal thyroid may follow the administration of potassium chlorate to the mother under certain circumstances. At this point the question must pass, for research and elucidation, from the hands of the obstetrician into those of the pharmacologist. It is desirable, however, to sum up the present position. Three propositions may be made:—

1. Experience shows that in many cases of habitual abortion the continuous administration of small doses of potassium chlorate is frequently followed by the extension of pregnancy to its normal limits.

2. Careful microscopic examination of the abortive ova expelled by these patients shows that the death of the ovum is due, as a rule, to extensive thrombosis within the intervillous space.

3. Large doses of potassium chlorate are well known to produce certain destructive changes in the blood, the therapeutic use of the substance having occasionally caused death in this way, especially in children.

The third proposition affords a clue to the way in which the administration of potassium chlorate prevents abortion in certain patients in whom early death of the ovum has become habitual. For it is only necessary to suppose that potassium chlorate, given in doses too small to produce its toxic effects by destruction of the blood, still alters the state of the blood and renders it less coagulable, thus preventing clotting in the intervillous space and consequent death of the ovum from this cause.

It is not postulated that there must be any peculiarity in the blood of these patients who habitually abort from placental thrombosis, as passive pelvic congestion of mechanical origin is apparently the sole cause in some cases. At the same time, the occurrence of eclampsia and other manifestations of toxæmia in some of the cases in question suggests that early abortion from placental thrombosis may often be a result of, and a natural cure for, toxæmic states occurring in connection with pregnancy. Chlorate of potassium in small doses would thus appear either to reduce the coagulability of normal blood, or to neutralise the effects of some form of toxæmia which favours thrombosis.

As to the occurrence of hypertrophy of the fœtal thyroid in the five cases mentioned, it may be argued that a toxic state of the maternal blood was to blame for this, and also for previous abortions not prevented by the administration of potassium chlorate. It may also be argued that the hypertrophy of the thyroid was the direct result of the changes in the maternal blood caused by the potassium chlorate. So many healthy children have, however, been born after the prolonged administration of this substance to the mother that no definite conclu-

sion appears permissible beyond the statement that under certain circumstances, at present not understood, the administration of potassium chlorate during pregnancy may be followed by hypertrophy of the thyroid gland of the fœtus. It is clear that opportunities for observation on the points are rare, and that, in order to obtain further information, recourse must be had to experimental work. This has already been begun by a colleague, whose results I hope to bring before the notice of this Society at a later date.

NOTE.—*25th July* 1904. The patient referred to was safely delivered of a healthy living child on 15th July. She had no treatment during pregnancy beyond Eascara and apenta water. Her urine was examined every fortnight throughout pregnancy, and was normal on every occasion. The output of urea was satisfactory throughout.

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See BALLANTYNE, *Antenatal Pathology*, for literature of congenital goitre.

VII. A CASE OF PUERPERAL ECLAMPSIA TREATED BY LARGE DOSES OF THYROID EXTRACT.

By H. OLIPHANT NICHOLSON, M.D., M.R.C.P. Ed., Obstetric Physician to the New Town Dispensary, Edinburgh.

IN several recent papers dealing with the subject of puerperal eclampsia I suggested the administration of some preparation of the thyroid gland, both as a prophylactic and also after the

onset of actual convulsions. Firstly, as a prophylactic remedy, which may be used in the condition of toxæmia commonly known as the pre-eclamptic state, I recommend that thyroid extract should be given in relatively small doses of five to twenty grains in the twenty-four hours. I think the main object of thyroid treatment at this stage is to readjust the processes of nutrition in such a manner as to complete more fully the metabolism of nitrogenous substances. I have now frequently used thyroid extract in this way, and have no doubt whatever that, in many cases at least, it exerts a very favourable influence on pre-eclamptic symptoms, and that it really does modify or readjust the metabolic processes of the body so as to admit of the termination of pregnancy at term, and without the occurrence of convulsions. Secondly, in the presence of actual convulsions also, thyroid extract is a valuable remedy. But at this stage of the toxæmia it is generally quite useless to give the small doses above mentioned. Very large doses may have to be used before any good effects are apparent, for the rationale for its use is then entirely different. The urine is greatly diminished in quantity, or may be completely suppressed, and the really essential aim of any method of treatment is to get the kidneys to secrete again.

In previous communications I have laid great emphasis on the condition of the circulation, which, I think, is invariably present in the eclamptic state. The condition of the arteries and arterioles is one of profound constriction, with resulting rise in the blood pressure. I am of opinion that these circulatory features which develop in eclampsia, unimportant as they may appear, give the clue to the only rational method of medical treatment. *Vaso-dilatation* is the principle of treatment indicated. This principle is involved in every successful therapeutic method of treating eclampsia, and it is the complete alteration produced in the condition of the circulation which makes it possible for the kidneys to resume their functions.

Therefore I believe that in the absence of an accepted theory of the causation of eclampsia it is well to lay stress upon this abnormal state of the circulation at the end of pregnancy, more especially when, as is usually the case, it is accompanied by a diminution in the quantity of urine passed, together with a fall in the percentage of urea.

For various reasons which I have previously discussed, thyroid extract appears to be an ideal vaso-dilator in cases of actual eclampsia, but it is then, as a rule, absolutely necessary to use very large doses. Thirty or forty grains may be given at first, and a second dose of twenty or thirty grains may be required in six or eight hours if there are no evidences of improvement. These doses may appear to be somewhat heroic, but personally I would not hesitate to give much larger quantities to a patient suffering from severe eclampsia. One wishes to produce symptoms of thyroid intoxication as rapidly as possible, and, so far as I have observed, less danger is incurred from giving a few large doses than from the continuous administration of much smaller quantities.

I have elsewhere referred to the value of large doses of morphine hypodermically for the immediate treatment of eclamptic convulsions. I stated that a sufficiently large dose was the most prompt and powerful vaso-dilator one could employ. I also indicated that the simultaneous or subsequent use of thyroid extract seemed to provide a most successful combination of remedies for the purpose of rapidly re-establishing the secretion of urine. I wish to record the following case of eclampsia, as it affords a good illustration of the beneficial effects of this method of treatment:—

Mrs A., 21 years of age, a primipara, came to the Midwifery Department of the New Town Dispensary, Edinburgh, on the 26th of June last. She was then in the eighth month of pregnancy, and presented no specially abnormal symptoms, although her pulse struck me as being somewhat slower and of

higher pressure than usual. She had had no "morning sickness" in the early months of her pregnancy, but had been troubled a good deal with heartburn.

It is my custom in all primiparous cases, during the last few weeks of pregnancy, to practice abdominal palpation in order to locate the position of the fœtus, and on 20th July I visited Mrs A. for this purpose. The presentation was a normal one, but during my examination I found that there was a marked degree of œdema of the abdominal walls and of the body generally. Mrs A. did not feel ill; she had no headache or vomiting, and the secretion of urine was only slightly less than normal. A specimen was examined, and although the specific gravity was only 1015, suggesting a diminished urea excretion, still there was no

FIG. 1.—Sphygmogram from a young primipara with pre-eclamptic symptoms. Illustrates the type of tracing obtained at the end of pregnancy when eclampsia is impending.

trace whatever of albumen. The only thing that impressed me at this visit was the condition of the circulation, and I did not then fully realise, as I do now, how much significance to attach to the indications afforded from its study. The pulse was both abnormally slow and of unusually high pressure, and the type of sphygmogram obtained was that which I have found to be invariably associated with a greatly increased peripheral resistance. I append a pulse-tracing (Fig. 1), and may at the same time state that on the only other occasions—three in number—in which I obtained almost identical tracings from women towards the end of pregnancy, and before the commencement of labour, all the patients were obviously in the pre-eclamptic state. I only wish at present to draw attention to the exaggerated size and the unduly sustained character of the second summit of the systolic wave, and also to another feature, namely,

the variable duration of the diastolic phases of the pulse curves. From an examination of a very large number of pulses in pregnant women nearing the end of gestation I am able to assert that the development to such a marked degree of these characters strongly suggests impending danger in the way of eclampsia. In the case of Mrs A. there was undoubted hypertrophy of the left ventricle, and there were none of the evidences, which one commonly finds during pregnancy, of dilatation of the right heart. There was no pulsation in the jugular veins. In spite of the points I have detailed I did not adopt any special treatment beyond prescribing some blue and rhubarb pills, and ordering milk diet.

I saw the patient again on 27th July, and she appeared to be going on satisfactorily. After this visit I was out of town for a week, and on the evening of 5th August a message reached me from one of the Dispensary pupils asking me to come immediately to see Mrs A., whom he was attending. The history I obtained was as follows:—On the evening of 4th August Mrs A., whose pregnancy had advanced to full time, did not feel so well as usual. She was drowsy, complained of severe headache, dimness of vision, and had several attacks of vomiting. During the night slight labour pains commenced, and the membranes ruptured early. On the following day (5th August), about 11 A.M., the pains became more severe, vomiting continued, and from this time onwards the secretion of urine apparently ceased. The student in charge of the case was called in the same evening, about 6.30 P.M., and found the patient in a semi-comatose condition, and unable to give any account of how she felt. The pains were strong, and the os was fully dilated. He was much alarmed at her condition, and more particularly as shortly after I had been summoned a very severe eclamptic fit occurred which lasted about two minutes. This seizure was followed by complete coma, and the respiration became stertorous in character. I arrived at the house a quarter of an hour later,

just as the natural powers had completed the delivery of a living child. The patient was still unconscious, and so far nothing had been done to control the eclamptic state. The placenta was expelled in about twenty minutes, and, as is usual in such cases, was followed by very little hæmorrhage. Immediately afterwards a typical eclamptic seizure occurred which lasted two minutes and left the patient in a more deeply comatose state. Half a grain of morphine was now injected hypodermically, and about half an hour later the skin for the first time showed indications of commencing perspiration. An hour later the third fit occurred. It was less severe in character, but lasted about a minute and a half. At 9.30 P.M. I left the house in order to obtain some thyroid extract, and I returned at 11 P.M. No more fits had occurred. The patient, though still semi-conscious, was able with difficulty to swallow eight 5-grain tabloids of thyroid extract (40 grains). I had intended to give this dose in solution per rectum if the patient had been unable to swallow. No urine had been passed since the early morning, and by means of a catheter it was found that the bladder contained only about three drachms. This urine became solid on boiling. A Jubilee nurse very kindly remained with the patient during the night.

On 6th August, at 10 A.M., I saw the patient again. She had slept fairly well during the night, but had vomited several times. She had perspired profusely. The temperature was normal, and the pulse was 92 per minute. She was now fairly conscious, and complained of much pain in her abdomen. On examination the bladder was found to be greatly distended, and by catheter 40 ounces of urine were drawn off. At 10.30 A.M. 30 grains of thyroid extract were given. The patient was still drowsy, but gradually became less so, and at 3 P.M. she passed 35 ounces of urine. At 8.30 P.M. I found that the temperature had risen to 101°, and the pulse-rate was 115 per minute. She was now quite conscious, and was perspiring very profusely.

She looked flushed and complained of headache. Evidently "thyroidism" had been caused by 70 grains of thyroid extract given, during a period of twenty hours. The tracing (Fig. 2) shows the marked alteration produced in the character of the pulse. At 9.30 P.M. 30 ounces of urine were passed, and at 10 P.M. a third dose of thyroid extract—15 grains—was administered. Eighty-five grains had been given in twenty-three hours.

On 7th August, at 10 A.M., I found the patient in practically her normal condition again. The nurse had given an enema, which had acted well, and urine was still being secreted copiously. Ten grains of thyroid extract were given, and the same dose was repeated at night. No more fits had occurred. After this date the patient progressed uninterruptedly, and.

FIG. 2.—Shows the alteration in the character of the pulse after "thyroidism" is produced.

the œdema disappeared very rapidly. A small amount of albumen was still present in the urine. The thyroid extract was continued in 10 grain doses twice daily till 9th August; then each dose was reduced to 5 grains. After ten days it was stopped altogether.

The case I have detailed illustrates a well-known type of eclampsia in which, I think, the most striking features are the sudden and almost complete arrest of the secretion of urine, with the presence temporarily of a large amount of albumen. The noteworthy points in relation to the treatment adopted are the unusually early re-establishment of the renal functions and the rapid and complete disappearance of all the symptoms. In less than twelve hours 40 ounces of urine were secreted, and the action of the kidneys was afterwards fully maintained. In such cases I believe the condition of anuria is a functional

one; the kidneys, in favourable cases, suffer no serious or permanent damage. As the mechanism of the arrest of the secretion of urine is so important, perhaps I may be allowed to refer briefly to some physiological points in connection with the matter.

There is a definite relationship between the general blood pressure and the secretion of urine; but it must be remembered that it is the pressure of blood in the glomeruli of the kidney that determines the amount of the secretion. Anything which causes a contraction of the arterioles of the body generally will raise the pressure in the arteries, and will at first raise the pressure in the glomeruli also, thus leading to an increased secretion of urine. But under various circumstances this contraction of the arterioles may become so pronounced that the branches of the renal artery are likewise constricted. Then, although the general blood pressure is exceedingly high, the pressure in the glomeruli may become so greatly reduced that the secretion of urine ceases entirely. Such a state of suppression of urine can be produced experimentally in dogs by putting clamps on the renal arteries, and Overbach has shown that albuminuria is thereby produced. The only way in which it is possible to re-establish the secreting function of the kidneys under such conditions is *to dilate the renal arteries*, and then, with the pressure in the systematic arteries unchanged, the glomeruli will soon become filled with blood, and diuresis will commence.

In eclampsia these circulatory phenomena, resulting in the arrest of the renal section, undoubtedly occur, but we do not know whether they are brought about by toxic or other influences. So far as I am aware we know of no toxin which can at all compare with the internal secretion of the supra-renal glands as a constrictor of the arterioles and capillaries. One can well imagine that the circulation of blood through the kidney—an organ so abundantly supplied with vaso-motor

nerves — could be stopped altogether if a very slight excess of supra-renal secretion happened to reach it. I believe that normally the thyroid secretion is the opposing influence which safeguards the renal circulation from a dangerous over-action of the supra-renals; but in some cases of eclampsia of the type I have described, it seems quite possible that such an over-action does occur, and in this way the production of such symptoms would be adequately accounted for. Hence perhaps the necessity of using the very large doses of thyroid extract which I have recommended in order to counteract the constriction of the renal arterioles.

The President wished to thank Dr Fothergill for coming to Edinburgh and giving them such an interesting paper, and hoped he would soon return with another good paper in his pocket. As to the question of the treatment of the patient now, he offered the suggestion that he should use iodide of potassium instead of the chlorate. When he was accoucheur to the New Town Dispensary he had frequently met with women who had several premature children, and in many of them there was some history or evidence of syphilis, and he had always prescribed iodide of potash and told them to take it through the whole pregnancy. He could not remember any case in which it had failed.

Professor Simpson agreed with the President that the papers were very interesting. They were specially indebted to Dr Fothergill who had come all the way from Manchester to read his valuable communication. He was particularly interested in the suggested relationship of goitre with the administration of chlorate of potash, but he was disposed to think that Dr Fothergill went too far in trying to establish a causal relationship, speaking of it as if it were a necessary one. They knew that chlorate of potash was administered often, and often without any effect being seen as far as they

could notice upon the thyroids of the infants eventually born. Although congenital goitres were common in goitrous districts, they might arise under other circumstances. He did not consider that the fact of the association having been observed in a series of cases, should hinder anybody from administering the drug in any case where otherwise it seemed desirable to give it. Although five cases of the association had been recorded, there must be 50 or 500 where there had been no such consequence. With regard to the case of which Dr Fothergill had spoken, unless there was some other condition which would lead him to think it was not wise to give it, he did not consider that the administration of the drug need be expected to be followed by the development of goitre in another infant. Dr Fothergill had started the question as to the mode of action of chlorate of potash. Sir James Simpson proposed the use of it in diseases of the placenta and the habitual death of the fœtus in utero, because it was the most oxygenated salt he knew of, and he believed it parted with its oxygen in the system. He himself had seen the influence of it in a series of cases, and had made a series of experiments in Virchow's laboratory under Hoppe-Seigler many years ago, from which it had become quite clear that the drug was not broken up in the system under normal conditions, though there might be circumstances under which it might be decomposed. At a later date he had written a paper quoting Bierz, who had said that under certain diseased conditions oxygen might be withdrawn from the chlorate of potassium. Hugo Schultz had also observed that it might be decomposed under peculiar circumstances. He was quite clear that under ordinary circumstances the drug passed through the system entire, and was almost completely eliminated by the kidneys within thirty hours after its administration. Marchand also had made observations as to the changes in the blood of persons poisoned by an overdose of the drug, and said that the hæmoglobin was converted into

methæmoglobin, and since, according to Hoppe-Seigler, the latter contained more oxygen, and that in a more stable condition than in hæmoglobin, it was possible that the chlorate might so modify the hæmoglobin in the maternal sinuses as to facilitate the transfer of its oxygen to the fœtal villi. Porak made a series of experiments showing that chlorate of potassium passed more quickly than other salts to the fœtus. The idea mentioned by Dr Fothergill was quite new to him, that its influence was due to the preventing of the thrombosis in the placenta. There was normally a certain degree of thrombosis occurring where there was no tendency to the premature expulsion of the fœtus. In some cases of so-called placental apoplexy where there was more than one apoplexy, it seemed almost to be demonstrated that the virtue of the drug seemed not to be in preventing the morbid change in the placenta, but in facilitating the passing of the elements to the fœtus that it draws from its mother in the portions of the placenta that remained healthy. It would be interesting to have an analysis of the blood in some of these cases of syphilitic disease or of albuminuria in pregnancy, for it had been recently shown by Blumreich that there was an excess of salt, especially of chlorides, as a normal phenomena in all pregnant animals, and in the human female, beginning at the commencement of pregnancy and disappearing immediately after the birth of the fœtus. Perhaps in some of these cases where there was a tendency to imperfect action in the placenta, the alkalinity of the blood, in cases where the chlorate had been given, might explain its influence. Other observers had pointed out further actions of the drug, and its sedative action on the heart was believed by Socquet to play an important part in its influence. Its beneficial effect in acute rheumatism might be due to its action on the circulation. All of these actions of the drug were worth investigating. The important point in the administration was to keep it constantly in the

system, so that up to the time of birth there might be some of the salt in the blood of the mother. The value of the drug had been shown from time to time in the Transactions of the Society, and he believed the late Dr Foulis was the last who had expressed his opinion of its value. As to the use of thyroid, they had accepted the idea as to the important part that Dr Nicholson attributed to it, and had all experimented more or less especially in cases of albuminuria with a tendency to eclampsia, and had been encouraged to pursue its use. At the same time they must not leave out of sight the value of other agents, and especially must they pay attention to the important observations made by a Danish veterinary surgeon, as to the value of iodide of potassium in large doses. Many cows in dairies suffered from eclampsia and died of it, but under the administration of iodide of potassium in large doses many cases recovered. Bolle had been allowed by Olshausen to test the value of this drug in some cases in the Maternity Hospital in Berlin, with satisfactory results. They had just had a case in the Maternity here which had come in with some convulsions, and in which thyroid did not seem to have any effect. When placed upon 10 grains of iodide of potassium every six hours the patient began to manifest for the first time some relaxation of her symptoms, and was giving good promise of recovery.

Dr Berry Hart said he had come to listen to the papers and had found them most interesting, but he wished to ask how it could be shown that in a case that issued favourably, the result was due to the drug administered and not to a natural cure. With regard to chlorate of potassium it was a good thing that their attention was drawn to the association of its administration with congenital goitre; but it was by no means a large proportion who had goitre, as compared with the very large number of cases in which it was given.

As to Dr Nicholson's paper, it was one of great interest.

The practical point was that in such cases of pregnancy one should not only pay attention to the presence of albumin, a qualitative analysis of the urine should be made and the amount of the urea estimated. What had struck him with regard to eclampsia was that it was not merely a vascular thing, but a condition in which they had acute nephritis with tube-casts and blood. They would not expect thyroid to do good in such circumstances, for it was apparently a mere vascular alterative. Were they in women with critical convulsions to stop all their active treatment in the way of delivery and simply rely on very large doses of thyroid? One point that had especially struck him in the case cited was that the woman was delivered and the thyroid was commenced after the delivery of the child. They knew that delivery had a very important effect in modifying eclampsia, and it was a question as to how much was due to the delivery and how much to the thyroid.

Dr Ritchie spoke of the great interest of the papers. With reference to Dr Fothergill's remark about Sir James Simpson's case, he wished to draw attention to the fact that it was only on the fourth occasion that the enlarged thyroid occurred. In the three previous pregnancies, in all of which chlorate of potassium had been given, the child was healthy and had no enlarged thyroid. As Professor Simpson had remarked, it was clear that that drug had not much to do with the condition. As to accouchement forcé, he did not know whether Dr Fothergill objected to all interference, and would allow eclampsia to run its course. It was clear that since the treatment of emptying the uterus in cases of frequently recurring fits had been carried out, the number of fatal cases had been much diminished. As to the use of thyroid, he was very much interested in Dr Nicholson's paper, and had noted the discrimination between the doses under different circumstances—the small dose was a prophylactic, and the large dose a vaso-dilator. He supposed that it was for that reason that iodide of potassium was useful,

in that it acted as a vaso-dilator, and it was often given with digitalis to counteract the effect of the latter on the smaller vessels. He agreed with Dr Hart that it was difficult to draw conclusions from the case mentioned as to the use of the large doses of thyroid, but thought Dr Nicholson was quite justified in using it as he did. They had all often met with cases of eclampsia which had recovered without thyroid treatment before the use of that drug was known. He had seen the entire disappearance of the albumin within thirty-six to forty-eight hours. At the same time they were encouraged to use thyroid under certain circumstances.

Dr J. W. Ballantyne said they had heard two very interesting and valuable papers. But with regard to Dr Fothergill's paper, he saw no real reason why coincidences should not occur in ante-natal as well as in post-natal pathology, and instanced one such coincidence that had happened to him and Dr John Thomson some years ago, in connection with the association of spina bifida and congenital prolapse of the uterus. As to the use of chlorate of potassium, he had dissected fœtuses which had been born dead after the administration of the drug, and there was not in any one of them any sign of any marked enlargement of the thyroid gland. As to the question of the causation of the action of the chlorate of potassium, they had lately had a little more light thrown on these placental interchanges, although it was still a complicated matter. The observations had been taken from fœtuses of different ages from three to four months onwards. The fœtuses had been analysed and the ultimate constituents arrived at, and in that way the actual elements, though not in their natural form, had been reached. It had been found that there was not a constant stream of minerals through the placenta, but that the interchanges varied at the different months of pregnancy, and in the last three months the constituents differed very considerably. In these last three months there was a great flow of three sub-

stances through the placenta to the fœtus—lime, potash, and iron. Chlorate of potassium was often given combined with iron, and they had therefore here the very thing that naturally passed through, only in increased amount. Was it not possible that the administration of the chlorate of potassium might not only make the flow more easy, but might also supply two of the constituents. The explanation generally given of the increased flow of minerals during the last three months was, that it was for the production of the red blood corpuscles and for the striped muscular fibres, which were especially developed at this time. It was therefore a possible theory that the chlorate combined with iron helped to nourish the fœtus in the last three months, helped in its blood formation, and supplied it with the constituents especially necessary at that time. It would, perhaps, be a good point to ascertain, whether cases of premature labour that benefited by the chlorate of potassium, were those in which in previous pregnancies there had been a state of anæmia. As to the use of thyroid, that question also linked itself to the fact of the interchanges in the placenta. The function of the thyroid in the fœtus was not quite understood—possibly even not in the adult. Perhaps it had to do with blood formation. With regard to the theory of its use in eclampsia, Professor Simpson had already mentioned a case which was at present in the Maternity, and he alluded to it to emphasise its striking points. He also referred to another case in which fits had occurred between five and six months, but under iodide of potash and saline infusions the pregnancy was going on, he hoped, to full term. He quite maintained that there were cases of eclampsia that did not require any active instrumental treatment, and he was not prepared to say that either thyroid or Bossi's dilator should be used in any case; but in time the cases would be more and more differentiated from one another. As to the dose of thyroid he would feel some hesitation in giving such large doses as had been given by Dr Nicholson.

Dr Church said, in reference to the use of chlorate of potash, that he had many years ago read a book of travels which mentioned the fact that travellers using chlorate of potash were more able for work and could climb better than those who did not. Judging from analogy, he had been in the habit of giving it to patients in somewhat similar circumstances—when the respiration was at fault—and he had had great belief in it under the impression that oxygen was given off. It had been found in certain experiments that when the drug was put into venous blood it became more arterial. How that was brought about he did not know, but it seemed to have something to do with what Sir James Simpson said.

Dr Haig Ferguson endorsed what had been said as to the interest of the papers. He was rather sceptical as to the advantage of chlorate of potash in threatened abortion; his experience, which was perhaps exceptional, was not very favourable. He had never seen any instance in which thyroid enlargement had followed its use. Dr Fothergill had spoken of the difficulty as to what should be the present line of treatment, and he wished to mention the treatment suggested by More Madden, which produced sometimes very excellent results. Abortion was not always due to the same cause. There were cases where the woman suffered from hæmorrhages, apparently due to a relaxed condition of the uterine muscles, and where they had repeated abortion apparently from that cause. In such cases small doses of ergot combined with strychnine helped to make the pregnancy go on, even in many cases beyond the full time, as More Madden has said—in six cases it had gone about three weeks beyond the time. As to the use of accouchement forcé in the treatment of eclampsia, where there were no labour symptoms, accouchment forcé should not be suggested; but where the woman was in labour there was no doubt that the acceleration of the labour tended to diminish the mortality. Of course the question was what was really meant by the term "accouchement forcé."

Dr Gibbons, of Boston, U.S.A., said the two papers had interested him very much. He wished to ask why the thyroid had been given for so long a period as ten days after the uterus was empty. In Boston they were not enthusiastic over thyroid extract, and certainly did not give it in the heroic doses mentioned. They did not obtain such good results in eclamptic cases, even when the uterus was empty, as were obtained in this country. As to the use of iodide of potash, he thought it had been the routine treatment round Boston in the practice of veterinary surgeons for a long time.

Dr Fothergill, in reply, said he thought he need not refer in detail to all the very kind remarks which had been made. In trying to be brief he had possibly failed to be perfectly clear. It was not suggested that chlorate of potash was a direct cause of enlargement of the fœtal thyroid; but that in the five cases on record, it had played some part in the causation of the goitre. Was it possible to discover the circumstances under which the salt had this unfortunate effect? He was inclined to give chlorate of potash once more to his patient, who was again pregnant at the present time; for she had already been fully treated for syphilis by other men. He had found that placental thrombosis was a very prominent feature in numerous specimens he had examined from cases of habitual abortion, and he therefore had formed the idea that it was the cause in many cases. As to the use of thyroid in eclampsia, he would leave it to Dr Nicholson to answer the criticisms which had been made. The whole matter was at present too involved to allow any one to give a definite opinion. It was quite clear that thyroid was a good stimulant to general metabolism; and, having used it freely for this purpose without observing any ill effects, he regarded it as a most innocuous substance. Dr Fothergill referred to different cases of so-called eclampsia, as showing that the condition was not quite so definite a clinical entity as was sometimes thought. In one case pus was found in the uterus and a dead fœtus was

expelled: another was an instance of puerperal septicæmia. These cases, doubtless, resembled those on which Müller and Albert had founded their views. In another case eclamptic symptoms followed ovariotomy in a woman whose urine contained aceto-acetic acid and who died apparently of β oxybutyric acid poisoning. Some workers were now inclined to regard this acid-æmia as an important element in the causation of eclampsia and various intoxications of pregnancy, and he thought that valuable results might ultimately be found in this direction.

Dr Nicholson, in reply, said that he was specially interested in Professor Simpson's remarks as to the value of iodide of potash in some albuminurias of pregnancy. In his preliminary paper on eclampsia, read before the Society in 1901, he had suggested that when this drug was used its beneficial effects were really due to its stimulating action upon the thyroid gland. Iodine was set free into the blood, and was picked up by the gland, and was utilised in the preparation of iodothyrin. Professor Stockman, who had investigated the pharmacology of the iodides, also believed that this was the rationale of the action of iodide of potash; and, on this view, one could more easily explain many of the therapeutic uses of the drug. As to tube-casts in eclampsia, he had not always been able to find them in some of the sudden cases. But hyaline casts were frequently present, and he thought their presence could be explained by the disorganisation of the kidney which resulted from the shutting off of its blood supply. He thought Dr Fordyce had missed the important point in his paper. He had wished to show that the secretion of urine was exceptionally rapid after these very large doses of thyroid. He had first of all found on passing a catheter that the bladder contained 3 drachms of urine. Eleven hours later there were 40 ounces of urine in the bladder, and the secretion was afterwards fully maintained. He thanked the Fellows for their remarks.

MEETING III.—JANUARY 9, 1904.

Dr N. T. BREWIS, *President, in the Chair.*

I. The following gentleman was elected an Ordinary Fellow of the Society:—Frederick Porter, M.B., C.M., 65 Morningside Road, Edinburgh.

II. *Professor Simpson* showed (*a*) UTERINE MYOMATA combined with mucous Polypi of Cavity; (*b*) ADENO-CARCINOMA UTERI; (*c*) SARCOMA UTERI.

III. *Dr Berry Hart* showed TWO FIBROID UTERI.

IV. *Dr Haultain* showed (*a*) UTERUS AND CYSTIC OVARY, removed for uncontrollable hæmorrhage; (*b*) LARGE PARTIALLY DEGENERATED SOLID OVARIAN TUMOUR; (*c*) SOLID OVARIAN TUMOUR AND MYOMATOUS UTERUS, removed from the same patient; (*d*) COMPLETE DECIDUAL CAST with contained Ovum; (*e*) VARIOUS FIBROID MYOMATOUS UTERI.

V. *Dr W. Fordyce* showed SMALL OVARIAN TUMOUR with unusual history.

VI. VAGINAL CÆSAREAN SECTION.

By J. M. MUNRO KERR, M.B., Ch.B., Obstetric Physician, Glasgow Maternity Hospital, etc.

THE operation of vaginal Cæsarean section introduced to your notice to-night, is one which so far has not aroused much attention in this country. Indeed, I have recently come across quite a number of obstetricians who were entirely unaware of the meaning of the expression. In the English language I know of only one paper on the subject, that by Stamm in the November number of the *American Journal of Obstetrics*. In all

probability the reason for this is, that the metal dilators of Bossi and Frommer have so much engrossed the attention of obstetricians that any other method of performing accouchement forcé than with them has received but scant attention. Speaking generally, criticism has been adverse to the operation, although there are one or two outstanding obstetricians, such as Bumm, who have expressed themselves very strongly in its favour. As regards my own feelings in the matter, while I cannot agree with all Dührssen claims for the operation, and would certainly not perform it as extensively as he recommends, I do think it is an operation of great value in certain cases.

While saying so much in favour of vaginal Cæsarean section, I have no sympathy with the position Dührssen has taken up in some of his recent remarks in regard to metal dilators, for such instruments, even the most prejudiced against them will admit, are in certain cases of great value and usefulness. It is most unfortunate when one treatment is pitted against another, and in the case of metal dilators and vaginal Cæsarean section this is specially so, for each has its place.

Dührssen without doubt got his idea of this operation from the method of removing small submucous fibroids by splitting the cervix, which all of us have employed for some years. He first described the operation in 1895, in connection with accouchement forcé in eclampsia. In 1896, he published a monograph entitled *Der Vaginale Kaiserchnitt.* Since then he has published other papers and made many communications on the subject to different societies. His latest remarks which I have already taken exception to, in so far as they condemn so decidedly the dilator of Bossi, appeared in the *Archives für Gynæcologie,* 1903, Bd. 69, Ht.1, in which journal he and Bossi have been advocating their respective methods of accouchement forcé, in most emphatic language. Others, specially Bumm of Halle, late of Basel, have written very appreciatively of the operation, and in the epitome of the *British Medical Journal*

for 7th November 1903, a case by Saft is described. If search is made of the literature one can collect about 50 cases in all.

In a paper read before the Glasgow Obstetrical Society on 23rd November, introducing a discussion on accouchement forcé, I discussed each of the methods of performing the operation—manual dilatation, dilatation by rubber bags, dilatation with metal instruments and incisions. I then considered more especially dilatation with metal dilators (Bossi-Frommer) and incisions. Now, without trespassing on the subject of dilatation with Bossi's instrument, which Dr Ballantyne is going to bring up to-night, I may give you the conclusions come to regarding the instrument from the cases in which I have employed the dilators. (1) When the cervix is obliterated and the os will admit the finger without difficulty, dilatation can be carried out in about twenty-five minutes and there will be little or no laceration. (2) In cases where the pregnancy has advanced to or near term, even although the cervix is not obliterated, dilatation may be accomplished with comparative safety to the cervix, provided care, time, and patience are expended on the operation. (3) In cases where pregnancy is not far advanced, great caution must be exercised in using the instrument, and in spite of the greatest care there will often be lacerations.

Before going further, however, it must be clearly understood, that vaginal Cæsarean section is a much more extensive operation than the deep incisions one makes to hasten delivery in cases of eclampsia, rigidity of the cervix, etc., where the cervix has become obliterated. Here are two examples of that treatment.

Some months ago, I was asked by Dr Grieve, Langside, to see a primipara who had been twenty-four hours in labour. I found her having severe pains which were coming on every few minutes and with a rigid cervix which admitted one finger. The pulse and temperature were normal, and so I advised waiting, the administration of full doses of opium, hot douching, and, if need

be later, cocaine. This was done, but although she got some rest from the opium, little if any progress was made, so that after some forty hours Dr Grieve again asked me to see her. By this time I found the os only a little more dilated, the pains still coming on severely, but the temperature fully a 100° and the pulse-rate about 110. The child's heart sounds were also slower. I had no hesitation in saying that the uterus must be emptied. To accomplish this the choice lay between Bossi's dilator and deep incisions. I chose the deep incisions which I made on each side, S.E., S.W., right up to the vault of the vagina. I then ruptured the membranes, applied forceps, and delivered the child without much difficulty and without lacerating the perineum. The operation took from four to five minutes, the child was asphyxiated, but soon recovered. The placenta was allowed time to separate, and was then expressed by Crede's method. The uterus was douched and the cervix stitched with catgut. The patient made a good recovery. Some months after, I examined the cervix and found it had healed almost perfectly.

The second case occurred the other day, she was a primipara about term who had been sent into the Maternity Hospital on account of eclampsia. She was comatose and had had many fits, her pulse was 140-150, small and irregular. The cervix was obliterated, but the external os admitted only one finger. As the pulse was so unsatisfactory, I decided to incise the cervix rather than dilate with Bossi; and I was glad I did so for the child was saved, when otherwise it would almost certainly have been lost. As before, the cervix was split right up to the vault S.E., S.W., forceps were applied, and a live but very deeply asphyxiated child delivered. This was accomplished without perineal laceration in six minutes. After some time the child was resuscitated—it still lives. The placenta was removed, the uterus douched, and the cervix stitched with great care. Before the patient left the hospital the cervix was examined, when it was found that the wound had healed perfectly.

Vaginal Cæsarean section which Dührssen suggested in 1895, and which he has been advocating ever since, is a very much more extensive operation, for it consists in separating the bladder from the anterior uterine wall, possibly the peritoneum from the posterior, and splitting the cervix anteriorly, and, if necessary, posteriorly right into the uterine cavity. Not only that but, if need be, extensive vaginal incisions are made. The two cases which have been performed in Glasgow are as follows:—At the end of October a patient, a iii.-para about five months pregnant, was sent into the hospital on account of persistent vomiting. Every medicinal remedy had been tried. With absolute rest in bed and feeding by the bowel the sickness was arrested, but whenever one attempted to feed her by the mouth the sickness returned. One night my house surgeon informed me that the patient had become very ill, and when I went along to the hospital I certainly found her so. She had been vomiting continously for hours. Her pulse was about 160 and extremely feeble, and she certainly looked as if she had not long to live. I therefore determined to empty the uterus. After strychnine had been given, a mixture of ether and chloroform was administered. Repeatedly during the operation those in attendance could not feel her pulse. On examining vaginally I found that the cervix was completely closed, and so rigid and firm that it would only admit a No. 10 Hegar. Do what I would I could not get in a larger size. Now, here I say there was absolutely no alternative in the way of treatment, for if I had plugged or put in tents and waited for the os to dilate sufficiently the woman would have been dead. The only treatment was *vaginal Cæsarean section.* I separated the bladder well up, as one does in vaginal hysterectomy, and it slips off the gravid uterus with the greatest ease. I then split the cervix right up beyond the os internum, and without any trouble scooped out the fœtus and placenta. The whole operation took about four minutes. I then douched out the uterus, stitched up the wound, brought the bladder down again, and tacked it into

its place, and finally put a loose piece of gauze into the vagina. The patient began to improve very shortly after the operation and left the hospital in a most satisfactory state. She had no trouble with her bladder and the wound healed perfectly, there being only a little dimple at the edge of the os externum. The second case which I will mention, is one which my friend Dr M'Lellan described at the last meeting of the Glasgow Obstetrical Society, when we were discussing accouchement forcé, and he kindly said that I could refer to it to-night.

The patient was a primipara, who after being thirty-six hours in labour was considered by Dr M'Lellan to require accouchement forcé. He incised the portio-vaginalis, but finding that he did not obtain sufficient enlargement of the canal he stripped off the bladder and incised the cervix up the middle line. The child was extracted alive, and the stitching of the uterus afterwards was performed with the greatest ease. These two cases illustrate the ease of the operation, and the fact that the after-stitching is not difficult.

The first and greatest argument in favour of Dührssen's operation is that sometimes it is the only method by which rapid emptying of the uterus is possible. Take, for example, Case I. just described, where the cervix was so rigid that it would not stretch, or the case reported by Ehrendorfer (*Centralblatt für Gynakologie*, 18th April 1903); also a case of uncontrollable vomiting in which the cervix could not be dilated. I am quite aware that such cases of extreme rigidity of the cervix are not common, and that they are very infrequent in the latter months of pregnancy. Nevertheless, every obstetrician of experience, and especially if he has a hospital practice, is liable to meet with them occasionally. If he refused to adopt this method, he has no alternative but to pack the cervix with gauze or some expanding tent and wait, and in some cases if he does that he will lose his patient.

The second advantage is that the uterus can be emptied much

more rapidly, for, roughly speaking, four or five minutes only are required. Here again the advantage is only occasionally of great importance. In most cases the difference between emptying the uterus in five minutes and in thirty minutes as with Bossi's dilator is immaterial. Still there are cases when the child's or mother's life, or perhaps the lives of both, may be saved by the more rapid method.

A third advantage claimed is the absence of shock. If a patient is deeply anæsthetised there generally is not much shock in forcibly dilating the cervix, either with the hands or metal dilators. Sometimes, however, especially in heart and bad cases of eclampsia, even although the patient is apparently deeply under the anæsthetic, I have seen a degree of shock produced, although never, in my experience so far, has it been alarming. Personally, therefore, I cannot attach great importance to this claim.

The last advantage I shall mention is that the operation is more surgical, and that you have a clean cut to deal with. There is no doubt the operation is more surgical, it appeals and satisfies the man of surgical instincts more than does forcible dilatation; you will, therefore, find it advocated most strongly by such men. That, however, does not of necessity make it the better operation, and it is a claim that should not be advanced, for it proves nothing.

As regards the matter of having a clean cut to deal with, I think most of us will admit that when we have a cut to treat, we prefer that it should be clean rather than lacerated; and if we knew that a cervix was going to lacerate with Bossi, we would prefer to incise the cervix. But we cannot tell that beforehand, and indeed, taking the recorded cases all over, there is not such a great number of lacerations recorded. But are there any cases in which you may expect lacerations, and where, consequently, you are better to incise than to dilate? I think there are.

In the *British Medical Journal* for 9th January there is a

short paper on accouchement forcé more especially by means of Bossi's and Frommer's dilators. I emphasised the danger of forcibly dilating the cervix in cases of pregnancy of seven months or under. I have thrice seen in such cases, twice in cases of my own, extensive lacerations occur. Many others have had a similar experience. In some cases (they are not many I grant) one encounters great rigidity of the cervix even in the later months; such are the cases where you may expect lacerations, and when incisions are better.

The most adverse criticism, as regards operation, has come from those who have neither seen nor performed the operation, and in this particular matter I am not surprised, for the operation, *à priori*, one would expect to be of considerable magnitude and difficulty, especially the after-stitching. It is not so, however. The bladder can be pushed off the cervix with great ease much more easily than in the non-gravid uterus. The incisions are not difficult to make if scissors are employed. The stitching is the most difficult part of the operation, and requires good light and assistance. But if the edges are grasped firmly with volcellum forceps one can get the stitches introduced without much trouble, and the dragging on the uterus completely controls any hæmorrhage.

Allowing all that, one must admit that it is an operation requiring some surgical experience, and is consequently not one suited for ordinary general practice. There Bossi's dilator, if it can at all with safety be employed, has its place. The other objection that at a subsequent pregnancy and labour there will be difficulty, may or may not be true; so far no one can speak from experience. However, I should expect not.

If one looks over the literature of the subject, one finds that malignant disease of the gravid uterus, eclampsia, heart disease, accidental hæmorrhage, persistent vomiting have been the chief indications. Now, it is a little difficult, and perhaps not wise, to predict the place vaginal Cæsarean section will occupy in future.

That it has come to stay I am certain. It will usually be the operation in cases where the cervix is too rigid to dilate and when the uterus must be emptied at once, in cases when every moment is of value in emptying the uterus, and in cases where there is a likelihood of laceration occurring if metal dilators are employed. Perhaps, and here I think I am on safe ground, its great place will be in accidental hæmorrhage in which so many recommend hysterectomy. As regards the operation in eclampsia it should displace ordinary Cæsarean section, in the rare cases of unobliterated and rigid cervix. Bossi's dilator, however, will serve for most cases.

My intention to-night has been to place the operation before you and to do so with all truthfulness, neither magnifying its advantages nor minimising its disadvantages. I feel very strongly that we, as obstetricians, owe Dührssen a deep debt of gratitude (although few of us will go the length he recommends) for bringing forward a treatment which, personally, I feel will always have a place amongst the recognised operations of obstetrics.

VII. THE USE OF BOSSI'S DILATOR IN EIGHT CASES OF COMPLICATED LABOUR.

By J. W. Ballantyne, M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Medical College for Women, Edinburgh; Examiner in Midwifery in the University of Edinburgh, etc.

The introduction of a new method of treatment, the invention of a new instrument, the discovery of a new drug, always ushers in a period of unrest in the therapeutics of the malady or maladies which the new drug or instrument is intended to benefit. Some practitioners are at once enamoured of the novel plan; others say the old is better; and yet others arrive at the conclusion that there are at least a few cases in which the new has advantages over the old methods. Such a new instrument

or medicine falls into the sea of medical opinion like a drop of water into a pool, causing countless ripples to traverse in centrifugal fashion its transiently smooth surface. If, by any chance, two or more new plans of treatment simultaneously solicit the suffrages of medical public opinion, it is as when two or more drops of water disturb the placidity of the pool; the ripples rushing out in all directions meet each other with conflicting crests and a mimic storm rages. By-and-by the tumult ceases; a rearrangement of opinion takes place; and once again there is apparent peace. So was it with the introduction of rapid dilatation of the cervix uteri by means of Bossi's dilator, and not yet can it be affirmed that the wonted calm of professional procedure has been restored. With a view to the desirable re-establishment of equilibrium in our obstetric counsels I am about to narrate eight cases in which Bossi's dilator was used in complicated labours; the recorded cases will thus be increased in number by eight, and the time will thus be brought a little nearer when we shall be able from a large number of observations to decide upon the merits of this means of cervical dilatation, and to give it its place in operative midwifery.

I have made use of Bossi's dilator both in gynæcological and obstetrical practice; but here I refer solely to the latter. I may say, however, that I have not been so impressed with its advantages over other means of cervical dilatation in purely gynæcological cases; its great sphere seems to me to lie in obstetrics. In three out of my eight cases the labour was complicated by eclampsia, in one by albuminuria and rigidity of the cervix, in one by postmaturity, and in one by quite a number of abnormal states (hydramnios, placenta prævia, face presentation, and anencephaly). In the remaining case, I used the instrument to induce premature labour in a woman with a narrow pelvis. In two instances the Bossi dilator was employed only when the labour was far advanced, as an accessory means of treatment. Two of the labours occurred

in the Maternity Hospital, one was in my private practice, and four were cases seen in consultation with other medical men.

I do not claim for the instrument that wide range of usefulness which some obstetricians have insisted upon. Even in eclampsia, the predominant indication for its employment, I am far from counselling its use in every case, and as a matter of fact the last two instances of that dreaded complication of pregnancy which Professor Simpson and I have had to deal with at the Maternity Hospital have been treated in quite another manner. At the same time, I believe that there are cases of eclampsia in which the safety of both mother and child may be better assured by means of the use of Bossi's dilator than by any other known plan; and, apart from eclampsia, there are other complications of labour which seem to me to call for its employment.

CASE I.—i.-para, eclampsia, œdema, narrow pelvis, R.O.P. position, head imperfectly flexed; dilatation with Bossi, forceps, basilysis; third stage hæmorrhage, adherent membranes; maternal recovery.

On 3rd November 1902, I saw Professor Simpson use Bossi's dilator in a serious case of eclampsia at the Royal Maternity Hospital, Edinburgh; the result was satisfactory, and when Professor Simpson communicated the record to the Edinburgh Obstetrical Society on 8th November, I remarked upon the ease with which the instrument had been applied and the rapidity and safety with which the dilatation had been effected. I soon had an opportunity of testing its merits for myself, for a series of eclampsia cases occurred at the hospital; and, since one of them seemed to me to call for the rapid emptying of the uterus, I used Bossi's dilator for the purpose.

The prevalence of eclampsia in the Edinburgh Maternity Hospital at this time was so noteworthy that I feel constrained to give the statistics. During the 36 days from 1st November

to 6th December 1902, 37 confinements occurred in the hospital; six of these were complicated by eclampsia (including the case in which Professor Simpson employed Bossi's dilator), and five others were attended by marked albuminuria although in them eclamptic seizures were warded off. There were, therefore, eleven cases of renal inadequacy in 37 pregnancies, or 29·7 per cent. All the mothers recovered, but it was an anxious time for the members of the hospital staff, who were beginning to wonder whether some curious inversion had taken place in the proportion of normal and complicated labours. All that November, eclampsia like *Atra Cura* was seated behind the horseman! Such an unusual succession of eclampsia cases, however, is not unprecedented; for, shortly after a note regarding the Edinburgh cases had appeared in the *British Medical Journal*, I received a letter from Dr Kedarnath Das of the Campbell Hospital in Calcutta, and in it he stated that he had once seen five cases of eclampsia in thirty hours. Surely such an occurrence ought to throw some light into the dark region of the causation of eclampsia in childbirth. But let me return to the narration of my experience with Bossi's dilator.

Mrs R., a primipara, 23 years of age, was admitted to the Maternity Hospital at 7.40 P.M., on 13th November. According to her menstrual dates she was almost at full term. She had not had morning sickness, but about the fourth month of pregnancy her legs had begun to swell, and the swelling had continued with an intermission of a few weeks up to the present time. Some degree of puffiness below the eyes had also been noticed. There had been great constipation during the whole pregnancy, and some frequency of micturition during the last month. Two days before admission she had a severe headache, chiefly over the vertex. Her pains began about 2 o'clock in the afternoon of 13th November; they were neither strong nor frequent, but about 6 o'clock she suddenly took a fit. A doctor was summoned, and at 6.30 she took another fit, and another about

an hour later. By this time she was on her way to the Maternity in a cab. She was conscious between the convulsive attacks; the only treatment she had had was chloroform inhalation.

On admission to the hospital the patient was conscious but very restless. There was œdema of both feet and legs, and also of the back; her pulse was rapid and of high tension. Abdominal palpation and auscultation suggested a vertex presentation, position R.O.P.; vaginal examination confirmed it, and gave the additional facts that the membranes were still present, that the os was about 1 inch in diameter, and that the anterior fontanelle of the head was coming down first; and external and internal pelvimetry made us aware that we were dealing with a generally contracted pelvis with a conjugata vera of about 3½ inches. On my arrival at the hospital, therefore, I found myself confronted with a case not of eclampsia merely, but of eclampsia in a primipara with a pelvis narrow both at the inlet and the outlet, and with the fœtal head presenting in the right oblique diameter, unflexed, with the forehead leading. Five ounces of urine were obtained by the catheter; it contained albumen, ascertained to be 24 grammes to the litre. The lower bowel was cleared out by means of a soap and water enema; two ounces of Henry's solution were given by the mouth, and a vaginal douche was being administered when another and a severe eclamptic fit came on. A quarter of a grain of morphia was given hypodermically and a pint and a quarter of saline solution was transfused under both breasts. It was now more than two hours since her admission; she was still having fits, partly controlled by chloroform; and the labour was making no progress.

At 10 P.M., then, I commenced dilatation of the cervix with Bossi's dilator, and in twenty minutes I obtained as complete dilatation as the size of the pelvis would allow. About this time the membranes ruptured and some liquor amnii deeply stained with meconium escaped, confirming me in my fear that

the infant was in danger. The head had partly rotated so that it was now lying transversely. With difficulty I applied the forceps, and made traction, but I could neither produce rotation nor get the head to descend. Several attempts were made but without success. As it now became apparent that any chance of saving the infant was remote, I resolved to terminate the labour with the basilyst. Basilysis was accordingly performed and the child extracted with Braun's cranioclast. It was now midnight, but we were not yet finished with complications; for third-stage hæmorrhage began. I thought this might be from a laceration of the cervix due to the Bossi, but examination showed only a slight tear. It turned out that it was due to an extensive adhesion of the membranes to the left wall of the uterus. After the membranes were extracted the uterus still remained flaccid; so a hot douche was given and some ergotin administered hypodermically. She showed signs of improvement from half-past one onwards. The infant, a female, weighed 7 lbs., without the brain and bones of the cranial vault.

The history of the puerperium may be summarised as a gradual recovery. The temperature swung between 99 and 101·5 (evening) for the first week, and the pulse did not fall to 80 till the beginning of the third week. The improvement in the condition of the urine was steady. Tube-casts were found for the first three days of the puerperium; the albumen, which on the night of the delivery had amounted to from 24 to 28 grammes per litre, fell to seven-eighths of a gramme the next day and to one-quarter of a gramme on the next, and thereafter it varied from a quarter to a half gramme, there being still a trace when she left the hospital. Vaginal douches and an occasional intra-uterine one were given in the early days of the puerperium, and the bowels were kept acting by means of Henry's solution. The patient went out of the hospital on 2nd December.

I have recorded this case at some length, partly because it was the first occasion on which I used the Bossi dilator, and partly because, being a hospital case, fuller details were available than can be got in private practice. The two following instances of eclampsia were seen by me in consultation; in many respects they resembled the first case; and their salient features are now to be described. In both of them I have been able to follow the progress of the patient after recovery and up to the present time, an advantage which private practice possesses over hospital work.

CASE II.—i.-para, 6½ months' pregnancy, eclampsia; dilatation with Bossi, forceps; fœtus non-viable; maternal recovery.

On 10th February 1903, I met with the second case of eclampsia in which I have employed Bossi's dilator. During the evening Dr George Dickson, of Ardmillan Terrace, telephoned for me to come out and see a primipara of 24 years of age who was having convulsive seizures. He had not been engaged to attend her in her confinement and was not in a position to say whether she had been showing signs of renal inadequacy or not. It is a continually recurring misfortune that pregnant patients, and especially primiparæ, do not place themselves under the care of a medical practitioner during pregnancy; if they did so it would be possible in many instances to ward off eclampsia, for the preventive treatment of that malady is full of hope. The patients are to be blamed, doubtless; but are we free from all reproach in the matter? Do our patients sufficiently understand that we regard pregnancy not indeed as a disease, but truly as a state of strain upon the whole system which always borders upon the pathological and not infrequently crosses the boundaries and enters the abnormal? Do they know from us that if we detect impending failure of the kidneys we can take means to prevent

it? Whatever may have been the condition of Dr Dickson's patient before he was hurriedly summoned to her, there could be no doubt that there was now much albumen in the urine; that she had had five eclamptic seizures in quick succession was also only too true. She was pregnant six and a half months; labour had commenced, but the cervix was very rigid and the os little more than an inch in diameter. I used the dilator, and on account of the rigidity allowed some thirty-five minutes to elapse before the size of the os was increased to 3 inches. As it was a premature, almost an immature labour, I did not completely dilate the cervix. About half an hour later, the fœtus was easily delivered with forceps; it was non-viable. It ought to have been stated that a small dose of morphia had been given (¼ grain) before my arrival. The patient made an uninterrupted recovery; the albumen quickly disappeared from the urine. She is now (14th December 1903) again pregnant about the fourth month; and Dr Dickson is testing the urine frequently. I do not anticipate that there will be any call for the use of the dilator in labour on this occasion; and I look forward with hopefulness to that natural and happy conclusion of a confinement—a tired but contented mother and a crying and contented baby, as the sequel to this second pregnancy.

CASE III.—i.-para, 8th month of pregnancy, eclampsia, R.O.P. position; dilatation with Bossi, forceps; maternal and infantile recovery, death of infant two months later.

On the morning of 30th August 1903, I was called to the third case of eclampsia in which I found the rapid method of dilatation to be indicated. The patient, a young primipara, had been seized with eclampsia during the night and Dr James Smith, of Brunton Place, had been summoned; he, in turn, telephoned for me. The pregnancy was at the eighth month, and there had been the usual prodromata of eclampsia. There

was no swelling of the legs but a good deal of puffiness was visible in the face. There had been twenty or more fits during the night, and the patient was in a semi-comatose state. Labour was going on but slowly, and the os was a little more than 1 inch in diameter. It was a vertex presentation, but, unfortunately, the position was R.O.P. I introduced the Bossi dilator at 9.15 A.M., and in fifteen minutes had dilated up to 9·5 cms. (nearly 4 inches). I then applied forceps; rotation could not be accomplished; with difficulty I delivered a somewhat small, living, male infant. The mother made a good recovery; there was no post-partum bleeding in excess of the normal, and no rise in temperature. The albuminuria, however, never entirely disappeared, and Dr Smith tells me that she has now (December 1903) still a trace of it. The infant also did well, and seemed to be thriving till one day two months after its birth it died suddenly. Dr Smith was from home at the time, and the exact cause of death was not ascertained. In this case, it so happened that one of the shields of the dilator was not in position during the dilatation, but no harm resulted therefrom.

In these three cases the indication for the use of the Bossi dilator was eclampsia. I am not considering here the large question whether in the presence of eclampsia it is or is not the right treatment to hasten the labour and empty the uterus. Probably no obstetrician will claim that it is always right to hasten delivery in eclampsia, just as no one will hold that it is always correct treatment to give morphia and thyroid extract and do nothing to bring on or to expedite labour. In the face of so serious a danger as eclampsia we must welcome every means that offers help, and we must try to make use of these various means; the hereditary teaching of any School of Obstetrics becomes a danger when it makes us shut our eyes to facts. For my own part, however, and speaking from an experience of twenty years during which I have had many

more eclampsia cases than I desired, I incline to the general principle of emptying the uterus when the pregnancy has advanced to the seventh month or later, and when the convulsions are not at once checked by such means as morphia, saline infusions, thyroid extract, iodide of potassium, and tincture of veratrum viride. When labour has actually commenced I more quickly adopt the line of active obstetric interference, more slowly when uterine contractions are absent. When the pregnancy has not reached the seventh month and when the infant, therefore, is not viable, I advocate the greatest possible delay before the induction of labour be begun and the most extended trial to be given to other means. Had I Case II. to manage at the present time I should probably delay longer than I did before dilating the cervix. Apart, however, from this question of the justifiability of hastening or exciting labour in cases of eclampsia, I maintain that Bossi's dilator is the best means we at present possess of opening up the cervical canal and permitting us to empty the uterus.

CASE IV.—iv.-para, albuminuria, rigidity of cervix of peculiarly persistent and resistent type; R.O.P. position; digital and then Bossi's dilatation, forceps; maternal and infantile recovery.

In this instance I employed Bossi's dilator for rigidity of the cervix of a peculiarly persistent kind, occurring in a patient suffering from albuminuria. She was 32 years of age and a iv.-para; she had also had two abortions. There had been forty hours of strong labour pains in the first stage before she was brought into the Maternity Hospital, which was on the evening of 2nd January 1903. She had already had chloral, and later morphine hypodermically to the extent of nearly 1 grain, in the hope of suspending uterine effort; the morphine failed to have this effect, and a further hypodermic of it given

after the patient's arrival in the hospital also proved quite inadequate to check the powerful but ineffective uterine action. I saw the case in the morning (3rd January 1903) about ten hours after admission. The head was presenting, position R.O.P., the membranes had ruptured, and the os was about 2 inches in diameter. I tried digital dilatation, but only succeeded in pushing the whole cervix backwards and forwards on the head; the cervical tissues were curiously resistent, more so than I recollect having met with; and the uterine contractions were going on almost without intermission. The patient had now been over fifty hours in labour, and since her admission to the hospital it had been discovered that there was albuminuria. For all these reasons I decided to employ artificial dilatation by means of the Bossi dilator. It required thirty minutes to distend the os from 2 to 4 inches; extraction of the child by means of forceps occupied twenty minutes more; and the third stage lasted nearly half an hour. The child, a male, was asphyxiated but was resuscitated and did well; it weighed 7 lbs. 7 ozs. The mother, also, made a good recovery.

Cases exhibiting the degree of cervical rigidity mentioned above are not common, and opinions differ considerably as to the manner in which they ought to be dealt with. The management of the less severe forms is well known and agreed upon; but regarding the worst cases there is much difference of opinion. Chloroform, chloral, cocaine applied locally, digital and bimanual dilatation are the means usually recommended; if they all fail, then most of the text-books advise the making of multiple incisions in the cervix. Now, in my opinion, it is then that the Bossi dilator will be found successfully to meet the requirements of the obstetric difficulty with which we are face to face. Digital dilatation is apt to be tedious and tiring and cannot be precisely regulated; dilatation by means of the Bossi, on the other hand, can be as

expeditious as is desirable, and can be exactly regulated. To my mind, also, it is more nearly Nature's plan to dilate than to cut, and, therefore, I do not lean to multiple incisions of the cervix except in a few cases requiring extraordinary rapidity of delivery, and they are not instances of rigidity such as is now under consideration.

CASE V.—iii.-para, narrow pelvis; induction of premature labour, vaginal douching, dilatation with Bossi, forceps; maternal recovery, infant died in a few hours.

Some years ago I communicated to this Society the record of a craniotomy in a woman with a narrow pelvis (*Trans. Edin. Obst. Soc.*, 1901, vol. xxvi., p. 24). The case was rendered noteworthy by the fact that I shortened the time required for the birth of the shoulders very considerably by the division of one of the clavicles (cleidotomy). This patient was again pregnant in 1902. Although she was told to report herself when at the seventh month of gestation, she failed to do so, and the full term was near at hand when I was summoned. She was, on this occasion, removed to the Maternity Hospital, as I thought it might be justifiable to consider Cæsarean section. The cervix, however, was partly dilated, and there was prolapse of the cord, so I again performed craniotomy, or basilysis to be exact, and so terminated the labour. There was no need to do cleidotomy in this confinement. After both these labours the patient ultimately recovered quite well, although after the second one there was some albumen and pus in the urine for a few days. Last summer, Dr James Smith, who was this woman's medical attendant, reported to me that she was pregnant for the third time. On this occasion she remembered our instructions and let us know of her state soon after the seventh month; but she insisted upon being attended to in her own house and not in hospital. Although the chances of successfully carrying

through an induction of premature labour were diminished by her decision, we made up our minds for the attempt. Accordingly, on 18th and 19th October, vaginal douching was carried on; and on the morning of 20th October, I induced labour by means of the Bossi dilator. About half an hour was allowed for the dilatation; by the end of that time the os was stretched to about 3¼ inches and the blades of the dilator were in close contact with the pelvic walls. I may say that the conjugata vera had been estimated at 3½ inches, but by direct measurement during labour I came to the conclusion that it was not more than 3¼ inches. With some difficulty, even at this age in pregnancy (about 220 days), I applied forceps and delivered a living male infant. The mother made a rapid recovery. Unfortunately, as indeed we had feared, the infant could not get the attention and care so necessary for it, and died some hours after its birth. The case, therefore, was unsatisfactory as far as the ultimate object of an induction of premature labour is concerned, for the infant did not survive; on the other hand, I was satisfied with the Bossi dilator as a means of carrying through an induction, when the surroundings of the patient are such as to make us dread the prolonged interference of the other methods of prematurely interrupting pregnancy. In this case we could only obtain the services of a trained nurse for the time of the confinement and for two visits a day afterwards; the hygienic surroundings of the patient were not of the best; the circumstances, therefore, called for the shorter rather than the longer methods of induction, while they were not propitious for the rearing of a prematurely-born infant. If this patient again become pregnant, it will be a matter of grave concern to us to determine what will be the best mode of dealing with the difficulty. To my mind the question will resolve itself into a choice between induction of premature labour in more satisfactory surroundings and with trained nursing, and symphysiotomy or perhaps Cæsarean section at the full term.

CASE VI.—i.-para, narrow pelvis, post-maturity of pregnancy; induction of post-mature labour, vaginal douching, bougie, Bossi, forceps; maternal recovery, infant still-born.

In this instance and in Case VII., Bossi's dilator was employed only as an accessory means of treatment when labour had been in progress for some time; they are not, therefore, strictly speaking, true examples of the use of rapid cervical dilatation in labour, but they contain so many elements of interest of their own, and they also throw such an interesting side-light upon the value of Bossi's dilator as an adjunct to other means of treatment, that I have included them here. Let us look first at Case VI.

I have seldom, if ever, had such prolonged anxiety over any obstetric case as I had over the one now to be narrated. To begin with, the patient was a primipara of 32 years of age, of markedly small stature; she had suffered at various times from severe illnesses, in one of which she had a menorrhagia and metrorrhagia lasting for months; and she had been treated for profound anæmia verging, according to the opinion of her medical attendant, upon the pernicious type. She became pregnant, it was thought, towards the middle of September 1902. I saw her for the first time towards the beginning of April 1903. From her menstrual history it appeared that her confinement ought to occur about the 22nd day of June; but her menstruation had had a very irregular character and could not be relied upon entirely, although it had been quite regular during the months which immediately followed marriage. The date of stirrage could not be accurately determined. Abdominal enlargement was noticed in January 1903; but on account of the presence of a justo-minor contraction of the pelvis she was carrying her child higher than usual. When I examined the pelvis in April I came to the conclusion that there was a degree of justo-minor contraction reducing the conjugata

vera to about 3¾ inches; it turned out afterwards that there was also some abnormal bulging forward of the promontory reducing the c.v. to about 3½ inches. Although I could not be certain, I fixed the probable date of delivery at 22nd June 1903. I saw the patient on several occasions during May and June. She was not in good health, being markedly anæmic; and on several occasions she had alarming fainting fits. I saw her when she was in one of these fits. She had very little appetite. Under appropriate treatment, however, she began to improve, and as the calculated date of delivery approached she began to state that she was feeling stronger and better than she had done for years. This improvement continued, and during the month of July she ate well, slept well, felt well; but the date of confinement had gone past, the middle of July had come, and she was still undelivered. I confess I was getting thoroughly puzzled with the state of matters. As it happened I had not long before contributed to the *Journal of Obstetrics and Gynæcology of the British Empire* (vol. ii., 521, 1902) an article on the subject of post-mature labours, with which I had on several occasions had to deal. I began to suspect that I was in contact with another of the same type in the present case. But there were several most puzzling features which I could not explain. Subsidence of the uterus had occurred early in June; since then there had been very little change in the size of the uterus. The fœtus, however, was undeniably alive, and I reflected to myself, with some concern, that it was probably not growing in size but becoming more ossified in certain parts, and more especially in the cranium. The mother's abdomen was not at all over-distended, in fact scarcely a single stria gravidarum was to be made out. The cervix was not only not effaced but had actually the consistence and size and shape of the non-pregnant state. Along with the suspicion therefore that I was dealing with a post-mature pregnancy, I was haunted

by the doubt that perhaps after all the menstrual and stirrage dates were wrong and that the patient was not yet at the full term. There was uncertainty as to whether it was a post-mature or a pre-mature labour that we were to expect. All the time there were two very satisfactory circumstances; the patient's health continued to be of the best, and there was never a trace of albumen to be found in the urine.

I have only spoken of the obstetric doubts and difficulties of this trying case; but a lively imagination will picture for itself the other inconveniences and disabilities under which we all lay. The monthly nurse who had been engaged for the confinement on 22nd June left to go to another patient on 20th July, and an emergency nurse was now in attendance. The patient, who ought to have been leaving for country quarters in August, was wondering whether there would be any chance of getting off in September, and so on, and so on. When, therefore, the 22nd of July passed without any event of note, the question of the induction of labour, which had been gradually taking shape, presented itself at once in concrete form. Although the pregnancy was a first one, and although there was some doubt as to the dates, it seemed to me that the termination of the gestation was called for. It was, therefore, with relief that I welcomed a consultation in the last week of July. On account of the doubt as to dates, the state of the cervix, and the absence of any signs of abdominal over-distension, my consultant came to the conclusion that the pregnancy was not yet at the full term; but on account of the pelvic narrowness, he counselled the induction of premature labour. My opinion leaned towards regarding the pregnancy as post-mature and for that reason as well as on account of the pelvic narrowness I was anxious to perform the induction of post-mature labour. We reached the same practical conclusion, therefore, although we arrived by different paths.

Accordingly, on 31st July, I ordered vaginal douching to be

commenced in this case, and, on 3rd August, I passed a rectal bougie deeply into the uterine cavity. Not long after the introduction of the bougie, the patient was violently sick, and the membranes ruptured; the undesirable complication of a dry labour was, therefore, introduced into the case. The dilatation of the cervix was very slow, and early on the 4th of August, I completed cervical dilatation by means of the Bossi; I then applied forceps, and, with the greatest difficulty, succeeded in extracting a large male child with a firmly ossified head, the anterior fontanelle of which was not much larger than the posterior one normally is. The baby's heart was beating at birth, but it could not be resuscitated. Dr Barbour Simpson, the advantage of whose assistance I had during the confinement, carried on artificial respiration for a prolonged time but without ultimate success. There was no cervical laceration of any importance, but the perineum required three sutures. The infant weighed nearly 9 lbs. and had all the signs of maturity; and I think, therefore, there can be no doubt that the pregnancy was post-mature, although the circumstances to which I have referred made it practically impossible to be sure of this before the birth of the child.

I need not describe in detail the events of the puerperium; they were far from what I could have wished, but the patient ultimately made a complete recovery. On the fourth day of the puerperium the temperature touched 100°, but this was the only occasion, and it varied between 97° and 99° for a good many days. The lochia was sweet throughout; the perineum healed well; and the pulse, although fast at first, fell to 74 on the eighth day of the puerperium and remained at or below that level thenceforth. What really delayed recovery was a very persistent and agonising neuralgia of the right thigh, leg, and foot, which set in about the fourth day, disappeared for three or four days, and then reappeared to remain more or less as an

impediment to convalescence for a month. At certain times in the day it disappeared entirely, but it interfered a great deal with sleep, and this, in association with the fact that the patient mourned much over her child, led to the prolonged nature of the recovery. Persistent taking of strong tonics (iron, arsenic, quinine), along with plenty of good food, did most to combat the neuralgia, which was not entirely overcome, however, till the patient got away from the scene of her prolonged anxiety and trials.

As I have said, the use of Bossi's dilator in this case was only one incident in a series of events. At the same time it aided materially in shortening the time necessary for complete cervical dilatation at a very critical stage. The cervix was altogether peculiar and was quite unlike that usually met with in post-mature labours; and even for the partial dilatation of it I required to allow about twenty-five minutes of the Bossi. I may state here as an interesting fact that at the end of ten days the cervix had returned to exactly the same shape, size, and consistence that it had before labour There are many interesting aspects to this whole case; but I shall not deal with them here as I am now concerned mainly with the use of Bossi's dilator.

CASE VII.—v.-para, hydramnios, placenta prævia, face and neck presentation, anencephalic fœtus, rigidity of cervix, uterine spasm; bimanual version failed; digital and Bossi's dilatation; failure of podalic version; other means failed; breaking up of presenting parts; piecemeal extraction; maternal recovery.

Case VII. was one of the most complicated labours that I have ever been called upon to manage. Case VI. was noteworthy for the anxiety connected with it. Case VII. was no less noteworthy on account of the multiplicity of abnormal

states which accompanied it. Briefly, its history was as follows.

On the evening of 28th September 1903, I was summoned by telephone to a labour case under the management of Drs Alex. Macdonald and Drysdale. At a later period I got the following notes of the case, but I may narrate them here. The patient was 34 years of age and had been married for twelve years. Menstruation began early (between 11 and 12), and was irregular till marriage. Her first pregnancy, which was at the age of 23 years, ended in a tedious labour; she made a poor recovery, and the baby died when four months old. The second pregnancy was twelve months later; labour was normal; a good recovery followed; and the child, a boy, is living. There was hydramnios. She had then a miscarriage at the third month. The fourth pregnancy was associated with hydramnios; the labour was normal, but the child was said to have been "suffocated by the water." Marked anæmia followed this pregnancy. The patient was now near the end of her fifth pregnancy (eighth month, as it was calculated), and fell into labour on the morning of 28th September. Dr Macdonald saw her then, but found little or no progress; in the afternoon the os was beginning to dilate, the membranes were protruding, and great quantities of waters were escaping. Dr Macdonald, with the help of Dr Drysdale, then examined the patient under chloroform. He found that the placenta had a low implantation, being partly over the os. Accordingly he determined to turn before the membranes were ruptured. With great difficulty he succeeded in dilating the os to admit two fingers; he made out the head or the back of the neck presenting; he gradually introduced the fingers but could feel no limbs; and the uterus contracting firmly upon the hand he could make no progress. It was about this stage that I was summoned.

When I examined the woman I was struck at once by the

small size and unusual shape of the uterus as felt through the abdomen. It was evidently contracted firmly upon its contents, and its contents felt as if they were coiled up in hedgehog fashion inside it. By the vagina, it was difficult to discover exactly what was presenting; at the right side was a part of the placenta (there had been sharp hæmorrhage from this, but it had now ceased, the placenta having got itself separated); at the left side was undoubtedly the face, but it was a malformed face, with a wide mouth, as far as I could make out, and with no cranium above it or anywhere in connection with it; and I could feel no limbs at all. Dr Macdonald had suspected that it was a monstrosity already; and from a review of the circumstances I came to the conclusion that it was an anencephalic fœtus with retroflexion of the spine, and with the limbs bent till they lay over the dorsum. At any rate, I formed this opinion after I had tried several times to perform version, and had failed. At first the great difficulty was found in the cervix, which we could not get to dilate; there was no proper presenting part to fit into it and expand it, and the uterus seemed to be in a state of constant spasm rather than of regular contractions. I therefore inserted the Bossi dilator and stretched the cervix; but an unexpected difficulty presented itself, for the dilator persisted in passing into the mouth of the fœtus, which, as it happened, there was no need to dilate. After several attempts, however, I succeeded in stretching the cervix up to a little over 3 inches in diameter. The cervical tissues were, nevertheless, very resistent, and throughout the subsequent manipulations were a constant cause of difficulty; in fact, I may say that the effect of the Bossi dilator in this instance was disappointing. Further, try as I would, I could not succeed in turning the fœtus; at one side of the presenting face I could not get my hand up, for there the fœtus and the placenta and membranes were apparently continuous; at the other side I could pass my hand in but could reach no limb.

The fœtus was lying in a curious fashion with its face and part of its chest presenting, and of course we could not bring it down in this attitude. After Dr Macdonald and I had made several attempts with crotchets, blunt hooks, and perforators, we managed to diminish the bulk of the shoulders sufficiently to draw down the dismembered fœtus. It proved to be, as had been suspected, an anencephalic monstrosity. The placenta and membranes were quickly extracted; a hot intra-uterine douche was given; and hot-water bottles, etc., were placed round her, for she had lost a considerable amount of blood, and was somewhat collapsed. Vaginal douching was continued during the first ten days of the puerperium. About the third day there was some general peritonitis; but under calomel, etc., it passed off. There was incontinence of urine for a short time. The patient, however, made a complete recovery ultimately, and was out soon after the twenty-first day.

In this case the dilator of Bossi was used only as an adjunct in the general operative treatment; and, in my opinion, it was not of much service. Possibly the type of cervical rigidity was not such as to yield readily to strong pressure applied for a short time; the dilatation to be lasting ought to have been more gradually effected. Such at any rate is my opinion. The case, however, was of so complicated a nature that it is doubtful whether any method of management would have given altogether satisfactory results.

Supplementary Record.

Case VIII.—Since this communication was placed on the billet for reading I have had another opportunity of employing Bossi's dilator in obstetrics. It is true that the instrument was only used as an accessory means of treatment to complete the dilatation of the cervix, still the case has a certain importance as being the only instance of accidental hæmorrhage which has

come under my care since I have begun to employ the Bossi. It was a typical example of the gravest type of accidental hæmorrhage, and ended in the death of both mother and infant.

The patient, a woman of 35 years of age, was near the full term of her sixth pregnancy. She went to bed, feeling perfectly well, on the evening of 15th December 1903, and awoke at 1.30 A.M., on the morning of the 16th, suffering from intense pain in the epigastrium and left side of the abdomen. She soon discovered that she was bleeding profusely; several clots had been expelled, and the bed was partly soaked with blood. Dr Davidson, of the Cowgate Dispensary, was called in, and he found the patient very low; there was great abdominal tenderness, a rapid and weak pulse, blanching of the face and lividity of the lips, and the bleeding was still going on. There was great restlessness and thirst, and now and again gasping respiration. The vagina was packed and the patient sent into the Maternity Hospital, where she arrived at 4 A.M. I was immediately summoned by telephone and arrived about 4.30. I had ordered an abdominal binder to be applied tightly and ergot to be given hypodermically, and these things had been done before my arrival. The patient was weak and exsanguine; pulse 140, small and of low tension; abdomen distended to the ensiform cartilage, but with a more diffuse outline than normal, rigid and tender to the touch. Two firm masses were felt to the left side. Presentation was the vertex, position L.O.A. Fœtal heart indistinctly heard. The os had a diameter of about 1½ inches, and the lips of the cervix were soft and dilatable. No placental tissue was felt through the os. Several blood clots were lying in the vagina.

Obviously the case was one of the most serious type; there were scarcely any uterine contractions and hæmorrhage was going on both externally and also internally. The foot of the bed was raised; the patient was wrapped in warm blankets and surrounded with hot bottles; the limbs were bandaged; two pints of saline solution were run in below the breasts; ether and strychnine

were given hypodermically; and attempts were made to induce uterine contractions by massage kneading the womb. The binder had been applied and ergot given, as already noted. I then ruptured the membranes. After waiting a short time I found no contractions going on, and as unfortunately the hæmorrhage was still going on and the patient was pulseless I made up my mind to deliver as rapidly as possible. I accordingly completed the dilatation with the Bossi—a comparatively easy matter requiring barely ten minutes—and applied forceps and delivered the child with the help of considerable traction about 6.30 A.M. The placenta came away on slight compression almost immediately and with two large clots and a great gush of blood. The pulse was imperceptible at the wrist. Every effort was made to stimulate the uterus to contract—hot intra-uterine douche, compression, massage, ergotine—but it remained absolutely flaccid. I then plugged the cavity of the uterus with sterilised gauze and something approaching a contracted state was obtained. A persistent attempt was now made by the injection of saline solution, by ether, by brandy, and other means, to bring the patient out of the state of collapse in which she was. For a time the pulse became perceptible at the wrist; but then, about 7.30 A.M., or little over three hours after the patient's admission, the uterus suddenly relaxed still further, fresh internal hæmorrhage took place, and the inevitable end came. The child, a male, weighing 6 lbs. 10 ozs., was born dead. The placenta was the seat of extensive disease. A small quantity of urine was drawn off during the labour, but was unfortunately lost before it had been examined.

Remarks.

Such were the eight cases in which I used Bossi's dilator. They were none of them normal labours in which the obstetrician stands by in waiting, watching attitude, ready to do much if needed but actually doing very little; in which it is easy to preserve inviolate all the laws of asepsis; in which the attendant

receives great credit for "bringing the mother safely through the trying time of her confinement," when, as a matter of fact, he has done little more than look on. They were all of them far removed from that side of midwifery practice; they belonged to strenuous obstetrics. In three of them there was eclampsia of a severe type; in one there was albuminuria and a labour of over fifty hours; in one we made the attempt to get a living child for a woman who had twice had craniotomy performed for flat pelvis; in another there were various dangers in pregnancy followed by an induction of post-mature labour in a narrow pelvis; in another there were many complications including hydramnios, face presentation, partial placenta prævia, and anencephaly; and in yet another there was accidental hæmorrhage of the worst type. They were cases requiring the obstetrician's aid; they had all of them fared badly had it not been obtainable; and to save seven out of the eight mothers was within sight of a completely satisfactory result. Three only of the eight infants survived birth, and one of these (a seven months' infant) for not more than a few hours; of the remainder, one was an anencephalic monstrosity, one was a six months' fœtus, one was so post-mature as to present the paradoxical result that he was non-viable, one had basilysis performed on him on account of contraction of the maternal pelvis, and one died before birth on account of the separation of the placenta.

Now, it is precisely in cases such as these that the dilator of Bossi finds its sphere of usefulness; it is an exceptional remedy for exceptional conditions. Its distal end is a powerful dilator; at its proximal end, therefore, must be a sensitive hand, an observant eye fixed on the indicator, and a brain alert to note the degree of resistance which experience has found to warrant continued dilatation. I have gradually learned the amount of resistance which to my mind indicates danger if the dilatation be not suspended; when I meet with it, I stop turning the screw, count fifteen slowly, and I then usually find that I can

give another turn or two; this process I continue till full dilatation is obtained. Undoubtedly the more dangerous cases are those in which the cervix is not taken up; but even in them, if the above rule be followed, the danger of a cervical tear is reduced to a minimum. The distal ends of the blades of the dilator must, for safety, be inside the os internum, else the cervix will almost of necessity be torn; but there is little difficulty, as a rule, in carrying out this precaution. The instrument should be arranged so far as possible so as not to press upon the pelvic nerves and the urethra. I prefer the four-bladed dilator of Bossi to the other types, although it is somewhat difficult to keep perfectly clean; having the pelvic curve it is easy of insertion, and having only four blades and not eight the finger of the operator can, if necessary, be introduced into the cervix during dilatation to note the state of the lips.

To my mind there are two great dangers associated with the use of Bossi's dilator. The first is the risk of severe laceration of the cervix and consequent hæmorrhage from it. If we will but remember that this instrument is, with the exception of the destructive cranioclasts and comminutors, the most powerful in the obstetrical armamentarium, and, remembering this, proceed with appropriate caution, we need not greatly fear this danger. The second is the chance of septic trouble. This is very considerable in the cases in which the Bossi dilator is employed, but not on account of its employment. It is due to the fact that in such cases there are several predisposing causes, such as delay in labour, bad health of the mother (as in eclampsia), weakening hæmorrhages, and the like, and to the circumstance that it is just in these obstetric emergencies and embarrassments that the finer details of obstetric asepsis break down and the medical attendant has to fall back upon antisepsis. It is an easy thing to preserve asepsis in a normal labour; but in the excitement of a complicated confinement, when eclamptic seizures are occurring in rapid succession, when perhaps

hæmorrhage is going on in alarming gushes, when no pulse is felt at the wrist, when the death of two patients at once faces the anxious obstetrician, then he would be more than human who did not fail in some of the exacting requirements of aseptic midwifery. An instrument is laid down on a towel that is not sterilised, an implement is used that has not been boiled for fifteen minutes, and the obstetrician's hand touches what it ought not. The best plan then comes to be the bringing in of antiseptic precautions as auxiliary helps; the first line of defence being broken, the attack falls upon the second, and we trust it may be strong. There are other dangers associated with the Bossi dilator, but they are such as are common to all rapid methods of stretching the cervix, or they are inherent in the condition which has called for such obstetric procedures; they are not, therefore, to be laid to its charge. It has, in my opinion, sufficient merit to counterbalance its risks and to allow a margin for inevitable accidents. But, let it be borne in mind, it is an instrument to be worked with the head rather than the hand.

The President conveyed the thanks of the Society to Dr Munro Kerr and Dr Ballantyne. Dr Kerr's paper appealed to him because of the very lucid manner in which he had described an interesting surgical procedure, and for the sensible remarks he had made upon it. He had had no personal experience of the operation, but in a paper which he read last year, he advocated it in certain cases of cancer of the cervix in which pregnancy had supervened. The paper of Dr Ballantyne appeared to him to be a very elaborate clinical record of a series of very interesting cases, which he had well described, and they were much indebted to him for recording those cases.

Professor Simpson said they were specially obliged to Dr Munro Kerr for coming to them a second time from Glasgow to read this paper. It was interesting to listen to the two papers, because there was naturally the temptation to take up with great

eagerness a certain line of procedure very vigorously, and one might have expected one or other of them might have gone in for the "whole hog," as the politicians say, in favour of the procedure in which he was most interested. But there was a beautiful amount of Scotch caution mixed up with their eagerness and interest in the methods so well described. He wished to compliment them on the judicious style in which they had advocated their procedure. He quite agreed that the way in which Dr Kerr presented the case on behalf of vaginal Cæsarean section was very convincing. He had never himself seen a case where he felt disposed to adopt the procedure, though he quite believed that such cases might occur, such as Dr Kerr himself had brought before them. He was quite right in saying that the operation should only be carried out by a good surgeon with skilled assistants and good surroundings. He considered also that probably daylight would be required, and that might restrict the sphere of the operation a little. He heartily endorsed what Dr Ballantyne had said as to the value of Bossi's dilator. Though he had not had the same amount of experience in the use of it that Dr Ballantyne had had, he had seen its serviceableness in a sufficient number of cases to make him feel that it was an important addition to the obstetrical armamentarium. Each of the papers would form an extremely valuable contribution to the *Transactions* of the Society.

Dr Ritchie said that he had listened with great pleasure to the papers. Before saying anything about them as a general practitioner, he remarked that he considered it a pity that the name of any one who had introduced an operation should be allowed to drop. They never nowadays heard, for example, the name of Alexander Wood who had introduced the hypodermic syringe. Various other names of men who had made improvements were associated with the hypodermic syringe. Acconci, a year before Dührssen wrote upon the subject, quite independently of anything Dührssen had done, proposed the

vaginal Cæsarean section. He was pleased to hear the very moderate way in which Dr Kerr spoke of the operation. Dührssen himself was so in favour of it as to propose it as a post-mortem operation where the woman was dying with a viable child. That seemed to him to be taking a very strained position indeed. In an early series of cases of this operation reported, there was a large proportion for cancer of the cervix. But even in these cases it would depend upon the personal experience of the gynæcologist or obstetrician as to what should be done. One surgeon would prefer in all cases to take the abdominal route, another the vaginal. He got this amount of comfort that Dr Kerr said that this operation would be suitable in a limited number of cases only, and was not one for general practitioners to undertake. He had, therefore, heard with the greater pleasure, Dr Ballantyne's description of the method of using Bossi's dilator.

Dr Haultain had listened to these papers with great interest. As to vaginal Cæsarean section he had had no experience, and with the exception of such a case as that brought before them, where there was extreme rigidity of the cervix at the time when very rapid delivery was required, he could not see that it had any further use, because the other means of delivery they had at their disposal seemed to offer a better and not so radical a method. As to dilatation by Bossi's instrument, he had had a fair experience (some eight or ten cases), and he must say that the instrument, as far as he could see in the majority of instances, was a most useful one—a distinct adjunct to the armamentarium of the obstetrician. Naturally it was an instrument which should be used with the greatest care, especially on account of the possibility of tearing the cervix, which was more likely in those cases where the cervix was not drawn up. On one occasion he had used the instrument in a case of induction of premature labour, and in that instance he had taken the precaution to introduce a laminaria tent the day before, and had had no difficulty in dilating after using the tent, because of the

softening the latter had brought about, and on that account there was a little shortening as well as dilatation. Under ordinary circumstances where the canal of the cervix remained of ordinary length, the instrument must be used with the very greatest care and very slowly. The instrument was associated especially with eclamptic cases, on account of the fact that eclampsia was the most formidable complication that required rapid dilatation. It was also useful in cases of concealed accidental hæmorrhage, of which he had had a case near full time with a most excellent result. One of the greatest advantages of the instrument was that it did not give rise to uterine contractions, and, as they all knew, one of the secrets of success in delivery in cases of eclamptic convulsions was to control the uterine contractions. With this dilator, one could dilate and deliver without one single uterine contraction taking place. He had demonstrated this over and over again both in the Maternity Hospital and in private cases.

Dr Webster said that after having heard these delightful papers on this dark part of the subject—for they were all in great difficulty when they came to cases of this kind—it was a great comfort to him that these things were not absolutely necessary, and that they could get along in most cases without them, especially without the more radical operation of cutting. The dilator seemed to him to be an instrument of great promise, and should be in every general practitioner's bag.

Dr Munro Kerr, in reply, said he had simply wished to make two points in presenting his paper—it was not to pit the vaginal Cæsarean section against Bossi's dilator, but simply, firstly, to point out that in certain cases the former was better than the latter. He had been looking out for such cases since Dührssen described the operation, and he had only come across the one case to which he had referred. Secondly, it was only in those cases of great rigidity of the cervix and of concealed accidental hæmorrhage that its value lay.

Dr J. W. Ballantyne said that he had little to say in reply except that he did not find that Bossi's dilator suspended uterine contractions when they were present. He thought on looking back over the cases that the last of the series (Case VIII.) was perhaps one in which vaginal Cæsarian section might have been done.

MEETING IV.—FEBRUARY 6, 1904.

Dr N. T. BREWIS, *President, in the Chair.*

I. The following gentlemen were elected Ordinary Fellows of the Society:—Dr Sherwin Gibbons, Boston; George Forden, M.R.C.S., L.S.A., Berkeley, Gloucestershire; R. G. Adams, L.R.C.P. & S. Ed., Maternity Hospital, Edinburgh.

II. *The President* showed:—(*a*) LARGE PYONEPHROSIS; (*b*) TUBERCULOUS KIDNEY AND URETER; (*c*) TWO TUMOURS OF SUPRARENAL CAPSULES; (*d*) TWO TUMOURS OF THE ROUND LIGAMENT; (*e*) FIBROID TUMOUR OF VAGINA; (*f*) VARIOUS OVARIAN AND UTERINE TUMOURS. One of the suprarenal tumours had been removed from a very stout lady. There had been considerable difficulty in the diagnosis of the case, but he had come to the conclusion that it was a tumour growing in the region of the kidney. It was so adherent in parts to the kidney that it was found better to remove that organ also. The tumour was composed of fat cartilage and bone.

III. *Professor Simpson* showed:—(*a*) FIBROID TUMOUR showing calcareous degeneration; (*b*) DOUBLE SALPINGITIS.

IV. *Dr Haultain* showed:—(*a*) UTERUS WITH LARGE ADHERENT SOLID OVARIAN FIBROMA, 27 lbs., removed from a woman, aged 70; (*b*) ADENOMA MALIGNUM OF UTERUS, removed from patient, aged 25, in whom the uterus had been scraped three times before he saw her. He dilated and curetted. After a fortnight the bleeding returned as before. He repeated the dilatation and

curetting, and in three weeks the hæmorrhage restarted. He was then under the necessity of removing the uterus, as the patient was losing very much and was very anæmic. On section of the uterus part of the endometrium was much hypertrophied, and on examination by the microscope there was perhaps a little excess of proliferation of epithelium, but the glandular structure was maintained. On section of the wall of the uterus there was deep penetration of the muscular wall by these glands, and he, therefore, looked on the case as one of those rare forms of adenoma malignum; (*c*) FIBRO-MYOMATOUS UTERUS, WITH ADENO-CARCINOMA AND DOUBLE OVARIAN TUMOURS—interesting because of the variety of growths present; (*d*) FIBRO-MYOMATOUS UTERUS AND SOLID CELLULAR OVARIAN TUMOUR, the latter a form of tumour not yet understood, pathologically malignant, and clinically benign: of this microscopic sections were also shown; (*e*) LARGE FIBRO-MYOMATOUS UTERUS, removed for reflex laryngismus stridulus, with resulting cure. The patient had been recommended various means of treatment without avail, and while walking down the street one day, had nearly died from absolute closure of the glottis. It was known that there was an abdominal swelling present, but it was giving rise to no local trouble. He suggested that the cough might be reflex from the uterus, and as all other means had failed in stopping it he removed the tumour. With the exception of a slight cough for two days after the operation, the cough had entirely disappeared; (*f*) UTERUS WITH LARGE CERVICAL FIBROID, growing from the posterior wall; (*g*) SOLID TUMOUR OF THE UTERUS, purely fibrous, dotted throughout with numerous blood cysts—(?) telangiectatic.

V. *Dr Lamond Lackie* showed:—(*a*) AN INTERSTITIAL FIBROID removed by hysterectomy from a patient, aged 48. The tumour was known to be present for some years. Pressure symptoms had been marked for the last two years, especially bladder symptoms, and the hæmorrhage was increasing; (*b*) KIDNEY removed for Pyonephrosis from a patient whom he had seen a

year previously for tubercular cystitis. In July of last year, her medical man discovered an abdominal swelling. On examination Dr Lackie found a renal tumour, and having cut down and evacuated the pus, he removed the whole tumour; (*c*) A BLIGHTED OVUM from a patient who was pregnant eight or nine weeks. After hæmorrhage for a few days and a few acute pains she passed an apparently ordinary two months' ovum. The sac was complete, but no embryo could be found.

VI. NOTE ON A CASE OF HEBOTOMY (LATERAL SECTION OF THE PUBES).

By D. BERRY HART, M.D., F.R.C.P.E., Gynæcologist to the Royal Infirmary; Lecturer on Obstetrics and Diseases of Women, School of Medicine of the Royal College, etc.

THE aim of the obstetrician at present is to obtain a satisfactory operation, safe for mother and child, at the various grades of pelvic deformity. Thus, when forceps and turning fail, as they must do when the c. v. is $3\frac{1}{2}$ inches (although some advocates of Version in the flat rickety pelvis would demur to this), it was hoped that Symphysiotomy would give a satisfactory solution in deformities between $3\frac{1}{2}$ and $2\frac{3}{4}$ inches. Below this Cæsarean section would step in, and Craniotomy be excluded altogether, unless in special cases, where the child was dead, or consent to a cutting operation refused.

Opinion is not unanimous on the value of Symphysiotomy, and Gigli objects to it on the ground that it involves section of a joint in a region where one cannot ensure asepsis, or the necessary immobility during convalescence. The same objection holds good to a less extent in Hebotomy, as the bone section is a little further from the sources of contamination and is a less dangerous source of absorption. There is also less risk of vaginal laceration in Hebotomy as well as of injury to bladder or the vascular parts in connection with the clitoris.

Before briefly describing my case, I may say that by Hebotomy, a term introduced by van de Velde, we mean a lateral section of the pubes, avoiding the symphysis joint. In Greek the pubes was the bone of Hebe, and we thus have a pure term and not a hybrid one like Pubotomy or Pubiotomy. It is to Gigli of Florence that we owe its revival, and he has the special merit of making the otherwise difficult, if not impossible, bone section easy and rapid by means of his wire saw.

My case is briefly as follows:—

M. R., æt. 25, ii.-para, concealed her condition so effectually that she was practically at full time when admitted to the Royal Maternity and Simpson Memorial Hospital, on 9th February 1903, where four years before she had been delivered by Craniotomy. On pelvic examination the interspinous measurement was found to be 10½ in.; intercristal, 11 in.; Baudelocque, 6 in.; diagonal conjugate, 4¼ in. We had thus to deal with a Vera of about 3¼-3½ in. in a flat pelvis, and one where Symphysiotomy, Hebotomy, or Cæsarean section was necessary. On Professor Simpson's advice I determined to do Hebotomy. Labour started on 15th February, at 7 A.M.; the occiput being then to the left and not fixed. At 6 P.M., the os was well dilated, and with Dr Haig Ferguson's assistance and with Professor Simpson and others present I operated as follows:—I adopted Gigli's procedure and made, after all antiseptic precautions had been observed, and with the patient in the lithotomy posture, an incision over the pubic bone through the soft parts, beginning just to the left of the middle line and cutting down and out obliquely to the subpubic tubercle at the lower end of the os pubis—*i.e.*, about half-way down the pubic arch. I may say that van de Velde begins at the pubic spine and then cuts down and in, ending below about the level of the vestibule. Here an instrument like a large aneurism needle would be of an advantage to manœuvre close behind the pubic arch from lower to upper end of incision. I had not the advantage of Gigli's special instrument, but had to be content with enlarging the

lower end of the incision with my finger and guiding a large sinus probe from below up, a finger in the vagina keeping it close to the bone. By means of a silk loop in the eye of the probe I now drew through Gigli's saw, and in a few seconds was able to make a clean section of the bone. Any bleeding yielded to pressure of gauze. As Gigli says, the pelvis "opened like a book," and undue separation being prevented by two assistants pressing on the hips, I delivered a living child with forceps. The placenta was adherent and had to be removed manually. I now brought the soft parts and periosteum together with sutures, first placing a gauze tampon in the wound and allowing it to project at the lower angle. Bladder, vagina, and cervix were uninjured. She was then placed in bed and a broad plaster strip passed round the pelvis. This is apt to contract, and sand bags are said to be sufficient. The patient unfortunately died on the third day, and with no local symptom, but apparently from exhaustion. She was persistently sick.

On post-mortem examination, Dr Stuart MacDonald found no local cause for death, no sepsis, but a markedly fatty liver; and he expressed his opinion that it was one of those rare cases of death caused by fatty degeneration of tissue from chloroform. His examination of the organs is not yet completed.

I am glad to say, therefore, that the death was not due to the operation itself, but apparently to the chloroform complication.

In thirteen recorded cases there have been three deaths, two of Baumm's, and my own. This gives a mortality of about 6 per cent. if my own case be excluded for reasons given. Gigli, van de Velde, and Arndt speak favourably of the operation, Baumm prefers Symphysiotomy. I think myself that the operation is a good one. The difficulties do not lie in the operation itself, but in the after treatment which is very troublesome. In another case I would employ sand bags to keep the bones in apposition, and place a winged catheter in the bladder, keeping the bowels confined for a little longer than usual. The pelvis is a simple flat

non-rickety one, with slight vertebral scoliosis leading to some little diminution of space on the left side. The measurements on the dried specimen for which I am indebted to my Infirmary Resident, Dr Hamilton, are as follows:—

	When Parts of Pubic Bone Apposed.	When Parts of Pubic Bone Separate, ·465 in.	Diff.	When Parts of Bone Separated, 1·08 in.	Diff.
Interspinous	9·73	9·87	·14	10·03	·30
Intercristal	10·53	10·62	·11	10·79	·26
Brim conjugate . . .	3·145	3·21	·65	3·491	·346
,, R. oblique . . .	4·64	4·94	·30	5·24	·6
,, L. oblique . . .	4·935	5·13	·195	5·22	·285
,, transverse . . .	5·43	5·755	·325	5·88	·45
Outlet conjugate . . .	4·0	4·08	·08	4·225	·225
,, R. oblique . . .	4·21	4·45	·24	4·965	·755
,, L. oblique . . .	3·87	4·22	·65	4·555	·685
,, transverse . . .	4·62	4·89	·27	5·03	·41
Baudelocques diam. . .	6·43	6·5	·07	6·5	·07
Meas. between post. inf. spines	3·325	3·18	– ·145	3·1	– ·225
,, ,, sup. ,,	4·45	4·38	– ·07	4·12	– ·33
Diagonal conjugate . .	4·15	4·20	·05	4·20	·05
Ineracetabular . . .	4·87	5·13	·26	5·46	·39

The amount of space gained should practically be the same as in Symphysiotomy, viz., 2-5 mm. for each cm. of divergence of the cut ends. Thus 6 cm. divergence would give 15 cm., *i.e.*, about $\frac{3}{5}$ of an inch.

It would be interesting to have Sandstein's work done again, *quâ* Hebotomy instead of Symphysiotomy, and might lead to some new facts.

The only point is as to the gain in this special pelvis. The C. V. was 3·145 in. on the bony pelvis: with ·6 of an inch added we get 3·745, and the gain by bulging into the cut space may make it up to nearly 4. In the dried bony pelvis the left sacro-iliac joint is a little sprung, but whether this is artificial or not, I am unable to say.

LITERATURE.

ARNDT.—"Ein fall von Hebotomie," *Zeit für Gynäk.*, 5th December 1903, No. 49.

BAUMM.—"Beitrag zur Pubiotomie nach Gigli," *Mon. für Geb. und Gynäk.*, Bd. xvii., s. 632.

GIGLI.—"Lateralschmitt durch das Os Pubis," *Zeit für Gynäk.*, 1902, No. 48.

VAN DE VELDE.—"Die Hebotomie," *Zeit für Gynäk.*, 1902, No. 37.

The President said they were much indebted to Dr Hart for bringing forward that very interesting case and for describing the operation so well. Thanks were specially due for having brought it forward even though the case did not recover.

Professor Simpson said he had nothing to add to what Dr Hart had said. It was quite clear that the only chance for the delivery of the woman was by Cæsarian section, or by widening of the pelvic girdle, and as he had been reading Gigli's papers, and had made up his mind to use the lateral section of the pubic bone whenever he saw a suitable case, he had recommended it to Dr Hart. He greatly regretted to hear of the death of the patient, for it had looked a promising enough case at the time, and having had that opportunity of witnessing the facility with which the procedure could be carried out, he had become confirmed in his impression that an operation which had first been proposed by Dr Aitken in this city in the eighteenth century was likely, in the form of Gigli's modification, to become the operation of the future.

Dr Barbour asked whether the amount of space obtained in this case was the same as that obtained in symphysiotomy. He would expect the greatest room in the true conjugate to be obtained by division of the symphysis itself.

Dr Haultain asked whether it was not in the oblique of the brim and not in the conjugate that the room was required, and from that point of view was not this operation better than

symphysiotomy. Therefore, it might be useful in certain types of contracted pelvis.

Dr Ritchie asked if the operation had not been introduced for Naegele's Obliquity, rather than on account of greater safety over symphysiotomy.

Professor Simpson thought it had not been introduced for this condition.

Dr Buist was not satisfied that there was any special advantage over symphysiotomy. He thought it would be a point in the operation to change the side according to the way in which the head was lying.

VII. SOME RENAL CASES.

By N. T. Brewis, F.R.C.S.Ed., President of the Edinburgh Obstetrical Society.

I do not know if I should make an apology for presenting these cases. It may be asked—is the gynæcologist not a trespasser when he undertakes renal surgery? The kidneys cannot be considered peculiar to women, nor can the bladder; yet it is the daily practice of every gynæcologist to treat affections of the latter.

In the consideration of affections of the female generative organs the bladder cannot be disregarded, because it is so frequently involved in these disorders. The gynæcologist can hardly with propriety ask a surgeon to treat the bladder while he is treating the uterus, and I hold that if he treats the bladder he must also, of necessity, attend to affections of the kidney. Successful treatment of one depends in many instances on intelligent management of the other, and if it is absurd to have one specialist treating the bladder and another the uterus, it is equally so to have the lower part of the urinary apparatus under the care of one man and the upper portion under another. Moreover, it is essential to the gynæcological surgeon to be conversant with the surgery of the urinary organs, because it

FIG. 1.—Pyonephrotic Kidney.

Girth = 48 inches; weight = 45 lbs.

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occasionally happens that they are involved in operations undertaken for the removal of uterine and ovarian tumours.

I am not one of those who think the gynæcologist should extend his sphere of action to all parts of the abdomen, but I do maintain that if he considers it right and proper to treat the bladder, he must also be prepared to treat the kidney and ureter which are so often the *fons et origo mali.*

My experience of renal surgery is not extensive; it includes—6 cases of Nephrectomy, 3 cases of Nephrotomy, 9 cases of Nephrorrhaphy, 2 cases of Nephro-lithotomy, 1 case of Nephro-ureterectomy; all were successful except one of nephrotomy for bi-lateral multiple septic abscesses. To-night I wish to narrate 4 of the more interesting of these cases.

Large Pyonephrotic Kidney.

Nephrectomy; circumference 48 *in.; weight* 45 *lbs.*

Mrs Mck., æt. 55.—The chief interest in this case is the great size to which the tumour attained and the length of time it took in reaching its huge dimensions. At the time of its removal the tumour had a circumference of exactly 4 ft., and the period of time during which the patient was known to have a renal swelling was twenty-five years.

As far back as 1872 the patient remembers that she suffered from what she calls "gravel," the urine frequently for a day at a time resembling strong coffee. In 1875 owing to an uneasy feeling which she had in her abdomen she consulted the late Dr Angus Macdonald who diagnosed floating kidney. Dr Macdonald gave her various prescriptions and the uneasiness gradually disappeared, but she felt easily tired and at times there was considerable thickness of the urine.

From this time till 1899 when I saw her at Dr Playfair's request, she had at frequent intervals what she terms "bad turns" with her urine. On these occasions she felt pain and the urine became thick and high coloured, and the

attacks lasted from a week to three months. When the urine became clear the attack passed off. At one period there was no attack for a year. In 1888 she herself became conscious of a swelling in her right side which felt to her to be about the size of an inverted saucer. At this time she drew the attention of her medical attendant to the fulness. He called in a consultant who diagnosed renal tumour, which he said could not be removed, but he recommended tapping. This, however, was not done.

When I saw her in 1899 the abdomen was enormously distended by an irregularly shaped fluctuating tumour, which occupied nearly the whole of the abdomen. A resonant note could only be elicited deep down in the left flank. I thought its removal possible, but before deciding to do so I catheterised the left ureter, and found that the urine from the left kidney contained albumen and a few casts. After consultation with a surgeon who thought the operation should not be attempted, chiefly because he considered that the tumour was adherent to the vena cava, the idea of interference was abandoned at that time. "All the summer," to quote the patient's own words, "I was very unwell and continued to be so the following winter. From then till the time of the operation, August 1901, I had a bad time; when a bad turn came on I was completely under a cloud. I could neither eat nor sleep, and had great difficulty in lying in bed. I seemed unable to get a resting-place and sat most of the time on the side of the bed, although I was thoroughly exhausted from want of sleep. Whenever I lay down I felt as if I would be choked."

The patient being in this distressing condition, Dr Playfair and I reconsidered the case. The tumour had become more fluctuating, and, in the hope that the fluid might be contained for the most part in one loculus, we aspirated but succeeded in withdrawing only one pint of pus.

This brought no relief, and as the patient's condition was

now desperate, and it was clear that if relief could not be got her life could only be of short duration, we determined to give her a chance by operation. By this time the patient's heart had become greatly enfeebled and both lower extremities were œdematous. We knew, however, that the right kidney was functionless, that all the work was carried on by the left, and we were hopeful that if the tumour was removed, and the heart did not fail during the first forty-eight hours following the operation, we had a fair chance of saving the patient's life.

Operation.—Assisted by Drs Playfair, Clark, and Angus Macdonald, the operation of nephrectomy was performed in August 1901. The incision was a long transverse one extending from one side to the other. The tumour lifted up the posterior layer of peritoneum, and displaced the intestines into the left lumbar region. The adhesions were universal and over the greater part of the surface were firm and fibrous, and necessitated numerous ligatures. A portion of the wall of the tumour felt very thin, and great care was used to prevent rupture and contamination with pus.

In the lower part the tumour was so intimately adherent to the peritoneum that in separating the adhesions the cavity was opened into. After the tumour was liberated from adhesions the pedicle was tied and the kidney removed. The posterior layer of peritoneum was stitched into position, the opening in the peritoneum closed, the large raw extraperitoneal cavity left after the removal of the tumour was stuffed with gauze, the end being carried through an opening in the loin. The wound was then closed with thick catgut sutures. The patient made a satisfactory recovery and is now in excellent health.

Description of Kidney by Dr Shennan.

Right Kidney.—Greatest circumference, 4 ft.; greatest diameter, 15 in.; greatest width, 11½ in.; greatest thickness, 10 in.

Outer surface.—General shape reniform with four well-

marked main sulci radiating out from hilum. The surface of prominences between are regular and covered almost wholly with fibrous adhesions.

There is some fat in the hilum, and in the neighbourhood to a less extent. Fat is absent over the remainder of the surface except for small flattened patches.

The cystic character of the mass is distinct and the walls appear to be composed of dense fibrous tissue, which over one of the loculi is very thin.

The ureter can be still distinguished as a thick-walled tube —lumen about $\frac{1}{8}$ in.—containing pus. It is bound down on the surface.

After fixation in formalin for four months, the mass was cut open longitudinally from convexity to hilum.

Section.—No kidney substance can be distinguished with the unaided eye; the general impression given being of a loculated cyst containing greenish gelatinous material (liquor puris) in the midst of which was a greyish-yellow deposit (pus cells).

Hilum.—Great increase of fibrous tissue in hilum, forming a triangular area, with base outwards (into kidney). Fat is seen in this in yellowish streaks amongst the fibrous tissue. The base of this triangle measures $2\frac{1}{2}$ in., its height 3 in. From either angle of the base a thick fibrous band passes outwards and subdivides so as to form septa, which pass to join the outer wall at points corresponding to the sulci described on the surface, and these divide the main cyst into several loculi varying in size.

These loculi are distinct from each other, but communicate with the pelvis of the kidney by small rounded openings—the openings of the calyces—in relation to three of which rough calculi are present.

A large calculus obstructs the ureter, so that ureter as well as calyces has been blocked, with the result that all have been distended but especially the calyces, since from the presence of

FIG. 2.—Tuberculous Kidney, and upper two-thirds of Ureter.

[*Face page* 117.

pus in the ureter, some has evidently been able to pass the calculus blocking it.

On removing the coagulated contents, the walls are covered for the most part with cretaceous material, in which a large proportion of uric acid can be distinguished.

Remarks.

As far as I can ascertain, this renal tumour is the largest that has been put on record.

The view we take of the method of formation of this swelling depends on whether we regard the calculus as occurring secondarily to the dilatation, or the dilatation as secondary to the calculus. I think the former is the more probable, and that the following sequence has occurred, first, movable kidney, then hydro-nephrosis, then the urine becoming alkaline would be followed by phosphatic deposit and formation of calculi; and, lastly, the irritation set up by the calculi would produce the pus.

Three months after the operation the patient called on me looking exceedingly well and almost as youthful as the daughter who accompanied her, and told me that she had walked from the east end of Princes Street.

Tuberculous Kidney (Right) and Ureter. Nephro-Ureterectomy. *Notes by Dr R. A. J. Harper, House Surgeon.*

Before relating the following case I would like to state that I am greatly indebted to Professor A. R. Simpson for his kindness in allowing me to operate on the patient in his ward, and also for the valuable assistance he gave me at the operation; assistance which I feel satisfied ensured in a great measure the successful result.

K. M., æt. 32, i.-para.

History.—Patient first noticed a swelling in right iliac region in January 1901, that is about eleven months ago. It was then

of size of hen's egg, and of the same consistence as at present. It was not tender. Whenever patient lay down, she felt as if the tumour were slipping back into right lumbar region. At this time, patient had no pain.

The tumour has gradually got larger, and patient has occasional attacks of pain in it, especially at her periods. She has no trouble in micturition. She has got thinner and weaker lately.

Previous Health and Family Health.—Good.

Sexual History.—Menstruation began at 13. Type twenty-eight days. Duration six days. Quantity moderate.

Morbid Menstruation.—No amenorrhœa, slight dysmenorrhœa. Menorrhagia for last three months. No leucorrhœa.

Pregnancies.—One, four years ago. Labour easy, and puerperium normal. Nursed baby for a year.

Other Systems.—Heart, normal. *Respiration,* slight dulness and blowing, breathing at right apex. Breathing harsh at left. No subjective symptoms of phthisis. *Urinary.*—Pus and albumin in urine.

Physical Examination.—In the right lumbar region there is a firm movable swelling, which feels like an enlarged kidney. From its lower end a hard elongated structure about the thickness of the thumb can be palpated proceeding down in the line of the ureter as far as the pelvic brim. By vaginal examination the right ureter is felt distinctly enlarged to the size of the little finger, the left ureter is not made out. The uterus is in good position. The right ovary feels enlarged and hard. The left is not felt.

11*th Dec.*—Bladder examined by Kelly's method. The mucous membrane found to be congested. The orifice of right ureter was red and ragged looking. Catheters were passed up both ureters and urine collected separately.

Pathologist's Report on Urine.—Tubercle bacilli are present in sediment from right kidney, absent from left. Dr Boyd

did the blood-freezing test. Freezing point found to be 5·6 (normal).

31*st Dec.*—Dr Brewis operated to-day. An incision was made in kidney angle down to a little in front of anterior superior spine. The muscles were then separated, and the perinephric fat grasped with forceps and pulled up. The kidney at the same time was pushed up into wound by pressure outside. The vessels at hilum were exposed and ligatured with strong silk, and divided. The incision was then prolonged downwards to about middle of Poupart's ligament. The ureter which was enormously thickened was traced downwards. It was very adherent especially at brim of pelvis where it was attached to the sheath of the iliac vessels, and also to the layer of peritoneum on the posterior wall of the abdomen. In dissecting it off, the peritoneal cavity was opened. The ureter having been fully dissected up, a pair of forceps was pushed up through vaginal roof and the ureter caught. It was then ligatured and cut away. The lower cut end (about 2 in.) was pulled down into vagina. The opening in peritoneum was sewn up with catgut.

Gauze was now packed from the wound through into the vagina. The upper part of the wound was also packed, and its end brought through at the upper angle of the wound. The abdominal wound was next sewn up with catgut, and a dressing applied. The cut end of the ureter in the vagina, still being held in a clamp, was stitched with silk into vaginal roof. Gauze was now packed into the vagina. Patient put to bed. Pulse fairly good.

Evening.—Patient doing well. Pulse 104 and good. Has little pain. Catheter at 8 P.M. drew off 10 ozs. of urine. Patient complaining of thirst and to have saline enemata four hourly.

1*st Jan.* 1902.—Patient restless all night. Slept none. Pulse 94. Temperature 99°. Feels fairly well, has no pain. Is still extremely thirsty, although having saline enemata every four hours, and by the mouth two teaspoonfuls of water hourly.

Abdomen slightly distended. At 8 P.M. had passed total of 32 ozs. of urine since operation.

Urine is acid. Specific gravity, 1025. *Urea* 10 grs. per oz. Faint trace of albumin. Patient this evening still sleepless. Given trional 20 grs. by mouth.

2nd Jan. 1902.—Patient feels better. Slept fairly well. Discharge through dressings. These were changed. Pulse and temperature rather higher. Patient does not feel thirsty, and has passed about 80 ozs. of urine in twenty-four hours. Given castor oil at 1 P.M. Had slight motion at 7 P.M. Turpentine enema at 8.30 with fair result.

11 P.M.—Patient now to have ℥ij milk every hour, and ʒij brandy every four hours.

Urine.—Specific gravity, 1020. Acid. No albumin, no blood. Urea 9 grs. per oz.

3rd Jan. 1902.—Patient feels well. Is passing urine freely. No pain. No headache.

5th Jan. 1902.—Patient feels well. Part of intrapelvic and of abdominal packing removed.

6th Jan. 1902.—Packing still further removed. Temperature goes up in afternoons to 99·4°. Patient feeling well. Appetite good. Is passing normal amount of urine.

7th Jan. 1902.—Clamp attached to lower end of ureter came away to-night.

10th Jan. 1902.—Patient chloroformed to-day and put in lithotomy position. Only stump of ureter left in vaginal roof. The uterus was fixed in position, and traction with volsella did not bring it down. It was found impossible to dissect away lower cut end of ureter as intended.

16th Jan. 1902.—Wound all but healed. Patient getting on well. Urine healthy.

25th Jan. 1902.—No tubercle bacilli found as yet in urine.

27th Jan. 1902.—Chest examined by Dr Gulland, who found

that some consolidation at both apices and a few crepitations at left.

3rd Feb. 1902.—There is some breaking down of upper part of wound. Tube put in and wound to be syringed out with tincture of iodi twice daily. Patient lying out on balcony all day, and being hyper nourished. Getting petroleum emulsion.

16th Feb. 1902.—Wound looking better. Discharge less. Patient's appetite good. Respiration satisfactory.

14th March 1902.—Patient progressing very favourably. No cough, no spit, and no night sweating. Eats very well and is gaining weight. Patient left hospital to-day, is to continue dressing wound at home, and to live an open-air life.

Description of Kidney and Ureter by Dr Stuart MacDonald.

The kidney is enlarged; on section there is an irregular cavity in the lower part of the kidney measuring 1½ in. by ¾ in.: its walls are ragged and lined with caseous looking matter. The cavity contains blood-stained caseous débris. The cavity is in direct communication with the pelvis of the kidney which is not dilated to any extent, though its lining membrane is thickened and ulcerated and it contains débris similar to that in the cavity. In the upper part of the kidney there is a similar irregular cavity measuring 2 in. by ¾ in. with similar contents and walls: it also communicates directly with the pelvis. Towards the centre of the kidney a dilated calyx with early ulceration of the wall is also seen. The cortex of the kidney is pale throughout. The structure is not well seen: there are a few small caseous areas scattered throughout: these are indistinct and better seen in the medullary region. There is an excessive deposit of fat in the neighbourhood of the pelvis. There is much cicatricial induration and thickening extending down from the pelvis along the ureter. The ureter is enormously

thickened; 3 in. below the kidney the wall of the ureter is fully ¾ in. thick: the mucous membrane is ulcerated.

Microscopical Transverse Section Wall of Cavity in lower part of Kidney.—Cavity is lined by tuberculous granulation tissue: giant cells very scanty: caseation slight: granulation tissue very vascular, much associated interstitial fibrosis of kidney. *Transverse Section of Ureter* shows extensive fibrous thickening of wall; the ureter is lined with vascular tuberculous granulation tissue with numerous giant-cell systems.

Remarks.

This case demonstrates the value of catheterisation of the ureters. By no other method could we have determined that the urine from the left kidney was free from tubercle bacilli. We were aware that the absence of the bacilli from the urine was not conclusive evidence that the left kidney was free from tubercle, but, taken in conjunction with evidence got from the bladder, viz., the inflammatory condition limited to the mucous membrane surrounding the orifice of the right ureter, we inferred that the disease was practically confined to the right kidney and ureter. The subsequent history of the patient has shown this view to be correct. When she left hospital the urine was free from tubercle bacilli, her health has gradually improved since, and a letter received from her last week states that she feels quite well and strong.

Adenoma of Suprarenal Body. Removal of Tumour and Kidney.

Mrs C., æt. 41, has had six children, the youngest being three years old. The patient was referred to me by her doctor on account of an abdominal swelling which had been noticed for about seven years. She has felt a pain in her right side and has been easily tired for four or five years, and during the last three

years she has lost about 2 stones in weight. She has had four attacks of hæmaturia. The first attack occurred 7½ years ago, she was unable to void urine for about twelve hours, the pain was severe and with the urine a little blood was passed. The second attack took place four years later, lasted a week, and as during the first there was hæmaturia with severe pain. In May 1902 she had her third seizure. On this occasion there was no pain or difficulty in micturating, but a considerable amount of blood was passed. The last attack happened in October last. A large quantity of blood was passed with little pain. The patient says these attacks came on after exertion or chill. Of late there has been slight menorrhagia.

Physical Examination.—A swelling is seen occupying the right lumbar and the umbilical regions. It is hard in consistence, irregular in shape, uneven on the surface, and freely movable. The tumour extends into the left flank and the ascending colon passes over its anterior surface.

On vaginal examination the uterus is felt retroverted and separate from the tumour. On 26th January 1903, the ureters were catheterised, and the following report was got from the examination of the separate urines:—

Urine from the Bladder.—Specific gravity, 1020. Reaction acid, urea 1·8 per cent. No albumen present. Deposit consists of bladder cells and a yeast.

Urine from Right Kidney.—Specific gravity, 1016. Reaction acid, urea 1·9 per cent. Deposit consists of red blood corpuscles and a few cells from pelvis of kidney or ureter.

Urine from Left Kidney.—Specific gravity, 1021. Reaction acid, urea 1·8 per cent. Deposit consists of red blood corpuscles, a considerable number of leucocytes, and one or two cells from pelvis of kidney or ureter.

The tumour was considered renal, and lumbar nephrectomy was performed January 1903. The operation proved a severe one, and recovery was slow. The cavity was drained with gauze

through the loin and a sinus formed which discharged for about two months. After her return home the patient became depressed and melancholy, and later on had delusions and suicidal ideas. One day walking with her sister she ran off and threw herself into the river and was drowned.

Description of Tumour by Dr Shennan.

Measurements at present time (February 1904).—Length 7 inches or 19 centimetres; breadth 7⅛ inches or 18 centimetres; thickness 3½ inches or 9 centimetres; it is now somewhat flattened.

Appearances.—It forms a flattened nodular mass with rounded projections of varying size, one of these being the remains of the kidney which projects at one angle and is also spread out in a thin layer over one of the surfaces to about a quarter the extent of that surface.

The original colour is now lost. On section the greater part of the mass consists of new growth sharply demarcated from the kidney and encapsuled. Thin fibrous trabeculæ stretch inwards from the capsule. These meet and form towards the centre a somewhat close network. In the irregularly rounded or oval meshes of this there is soft new growth in masses of varying size. The larger nodules are breaking down and in some there are dark areas, the result of hæmorrhage, whilst in others towards the centre there is an appearance of caseation.

When of more recent formation they are seen to be subdivided by very delicate partitions which give them a reticulate glandular character.

The kidney is not invaded, and so far as can be made out, the growth has probably begun in the neighbourhood of the pelvis stretching the kidney over it. The ureter can not be made out.

Microscopic Examination. — Under the microscope the

tumour is made up of masses of more or less polygonal epithelial cells. No lumen can be distinguished. They are separated by extremely delicate bands of connective tissue which contain channels, some of them blood capillaries others lymphatic. These in the denser parts of the tumour appear simply as chinks separating the masses of cells.

Cells.—The nuclei are rounded. The protoplasm is finely granular and stains deeply with eosin. Many of them are degenerated showing either fatty change or granular disintegration. In the distinctly necrosed part of the tumour they completely fail to stain. Many of the cells possess several nuclei and some of these are larger than the average. Their arrangement is very similar to that found in the glomerular or reticular zone of the cortex of the supra-renal gland.

In the capsule and in the thicker bands of fibrous tissue there are collections of golden brown pigment, chiefly lying in the large cells and apparently of hæmatogenous origin. The structure, naked eye and microscopical, is that characteristic of a supra-renal rest tumour or hydronephroma.

Kidney Splitting for Hæmaturia.

Mrs. H., æt. 43, viii.-para, youngest child three years old. The patient first noticed blood in her urine four years ago, and ever since it has recurred at short intervals. Before the birth of her last child she was confined to bed for thirteen weeks on account of it. The labour was natural, but the urine did not clear up. Since the beginning of this year (1903) the bleeding has been constant. The patient was admitted into my Home in April 1903, and, while under observation there, the urine was uniformly blood stained but often large quantities of blood passed and formed clots. Attacks of faintness attended these larger losses.

On 29th May the bladder was examined with the cystoscope and the ureters catheterised. A pool of blood was seen lying in

the bladder, but when removed the walls appeared healthy. Blood was seen coming from the left ureter while that from the right was clear. Catheters were passed into the ureters and urine obtained from each kidney. A catheter specimen had previously been obtained from the bladder. The separate specimens were sent to the Laboratory of the Royal College of Physicians, and the following report was received:—

Urine from Bladder gives acid reaction, considerable quantity of albumen. Deposit consists of yellow pigment in granules (altered hæmoglobin), leucocytes, and shadows of red corpuscles.

Urine from Right Kidney gives acid reaction. Urea = 1·2 per cent. Traces of albumen. Deposit consists of masses of epithelium of pelvis or ureter, altered red blood corpuscles, leucocytes, uric acid crystals single and in masses, amorphous urates.

Urine from Left Kindey gives acid reaction. Urea = 1·1 per cent. Traces of albumen. Deposit the same as from the right kidney, but red cells more numerous and more altered, nearly all shadows and leucocytes more numerous and brown amorphous deposit of altered hæmoglobin.

Operation.—The usual lumbar incision was made, and the kidney brought into view after considerable difficulty owing to its being intimately and universally adherent. The organ was found to be uniformly increased in size, otherwise it presented a normal appearance, with the exception of an area about one shilling piece in extent where the capsule was raised in the form of a bleb under which the kidney substance was soft.

A longitudinal incision in the middle line through the whole substance of the kidney, dividing the organ into two halves, was made, and the pelvis explored. Nothing abnormal was found in the pelvis, but the kidney section presented the appearance of chronic interstitial inflammation. Therefore, the two halves were brought into apposition and sutured loosely by six

or eight catgut sutures. The kidney was then put back, a drain introduced and the wound closed.

The patient made a good recovery, the blood disappeared from the urine; on 23rd June there were very slight traces of albumen, and when she left the Home on 30th June there were none. Ever since, she has improved in health, and on 1st November 1903, six months after her operation when she came to show herself, there was neither albumen nor blood present.

Remarks.

In this case I unwittingly operated, as Harrison did in his first three cases, on a patient suffering from nephritis. The large quantities of blood which the patient passed, the absence of casts in the urine, and the fact that on cystoscopic examination blood was seen trickling from the left ureter, and not from the right, misled me. When I incised the kidney I expected to find a calculus or a malignant growth, and it was only after these were found to be absent that the true state of affairs was recognised. On questioning the patient subsequently it was found that eight years ago she had a slight attack of scarlet fever. The operation however cured the patient. It is interesting to note that splitting of one kidney was sufficient to afford relief to both.

Dr Haultain said he was much interested in Dr Brewis's paper. He thought his opening remarks were open to discussion—as to whether we as an Obstetrical and Gynæcological Society were to admit that kidney operations were gynæcological. It was perhaps a question—"What was the dividing line between gynæcology and general surgery?" Of course it was for the individual to take up the position he desired. From a personal point of view there was no reason why the gynæcologist should not take up abdominal surgery, and the temptation to do

so was strong, for a large experience led them to be constantly asked to see other abdominal tumours, especially tumours of the kidney. They knew that in provincial towns, such as Aberdeen and Newcastle, where specialism was little recognised, the question was not quite the same; but in schools, such as Edinburgh or London, as a rule, they found that gynæcological operations remained in the hands of specialists. It appeared to him that the kidney was outside the sphere of the gynæcologist. One might as well say that the appendix belonged to gynæcology because it was occasionally adherent to the ovary or tube and dipped into the pelvis. In Edinburgh, as a rule, general surgeons did not interfere with pelvic surgery, but handed over cases of that kind to gynæcologists, and it was therefore a pity that operations on the kidney should be done in the gynæcological wards of the Royal Infirmary. It seemed to tend seriously to interfere with that academic harmony of which we in Edinburgh medical circles were so justly proud. As a Fellow of the Obstetrical Society he strongly dissented from renal surgery being considered a suitable theme for discussion at their meetings as it was quite outside the province of gynæcology or obstetrics.

Dr J. W. Ballantyne said it seemed to him that the condition of things in the Far East was something like their discussion to-night. The kidney originally belonged to medicine; now, both gynæcologist and surgeon were fighting for it, and the one that could do the best had better get it. The kidney was Manchuria. As to the supra-renal capsule, that was Korea, and they had no business there at all.

The President, in reply, thanked the Society for the way in which they had received his paper. He had stated at its commencement that he had no sympathy with gynæcologists who wished to extend their sphere of action to abdominal surgery. He had repeatedly refused to operate on other organs in the abdomen, but gave his reasons for thinking himself entitled to

operate on the kidney. If a gynæcologist treats the bladder he must also treat the kidney. He cannot treat the one without the other, and one gynæcologist cannot consistently object to another doing renal surgery until he himself has relinquished all operative work on the bladder. Two of the cases he had exhibited had been given to him by surgeons simply because they were not diagnosed as surgical but gynæcological cases. Another of the cases was seen by an Infirmary surgeon, who refused to operate because he thought it was an impossibility to remove the tumour on account of its being supposed to be adherent to the vena cava. He had no wish to extend his sphere of work to other organs, but since he had taken up the catheterisation of the uterers brought in by Kelly ten years ago, it had brought a good deal more renal work to him, and surgeons in the Royal Infirmary had often consulted him about renal cases.

MEETING V.—MARCH 9, 1904.

Professor A. R. SIMPSON, *Vice-President, in the Chair.*

Professor Simpson, Vice-President, read the following telegram from Dr Brewis:—"*Teneriffe.*—Please express at meeting President's sorrow for Society's loss," and said:—In the absence of our President the sorrowful duty falls on me to try to say something as to the sense we all feel of the loss, the great loss, the Society has sustained through the death of Dr Milne Murray. It is more than a year since pneumonia laid him low and deprived us of his bright and always stimulating presence. He had recovered from the dangerously acute attack and was battling bravely with the after-consequences, so that when we heard of his working with much zest at a Text-book and when we read the characteristically vigorous letter in defence of axis-traction

forceps that appeared from his pen in the *British Medical Journal* of four Saturdays ago, we hoped that he might yet return to work. The surgical intervention, however, that might have hastened his cure failed of its desired effect, and his brilliant career came to an untimely close.

Robert Milne Murray brought to the study of medicine in our University a singularly clear mind, that had been well trained and was already stored with various forms of knowledge. He had been disciplined first under his father in the school at Fettercairn and afterwards in the University of St Andrews, where he took the M.A. degree. He early showed that he was at home in chemistry and in physics, and he became an acknowledged master in electricity. I do not find from the honours records in the Calendars that he took a prominent place amongst competitors for class distinction until he attended the class of midwifery, and in the spring of 1879 I had the pleasure of handing him one of the class medals.

Murray graduated the following summer, and happily for our department of the profession, his keen scientific intellect was erelong devoted specially to obstetrics under the guidance of Sir Halliday Croom, who had the wisdom to secure him as his assistant. He was a born lecturer, and when betimes he opened classes of his own he speedily took a foremost place among the teachers in the Edinburgh School of Midwifery. He joined our Society in the January subsequent to his graduation, Professor W. L. Reid of Glasgow and Dr James Ritchie, who preceded Dr Brewis in this chair, being elected as Fellows at the same meeting.

It was suggestive of his interest in a field in which he was afterwards to gain distinction that his first communication to the Society, in February 1881, was "On a form of Post-partum Incontinence of Urine and its Treatment by Faradaism." How often in later times he demonstrated the value of electric currents in the treatment of uterine fibroids and other pelvic disease, is well known to you all. His skill in their application

is written in the grateful memory of many a patient. His inventiveness showed itself in improvements in electric apparatus, and when the Managers of the Royal Infirmary instituted a department of electro-therapeutics the whole profession recognised that they had made the best of choices when they placed Milne Murray at the head of it.

In 1882 he gave us as his first contribution of some length, an interesting history of a difficult face case in which he used a forceps, the value of which I had advocated in the Society the same year (1880) in which he became a Fellow. In my communication I gave to that type of midwifery forceps the designation of "Axis-traction Forceps," and laid before the profession a model which, with minor modifications, has facilitated the spread of the use of Tarnier's great invention, not only in this country, but also in Germany and across the Atlantic. In 1891 Dr Murray read an important memoir on the forceps in which he sought to "define with accuracy, as far as possible, the principles on which the axis-traction forceps acts, and to give a definite mechanical construction of the instrument based on these principles," and further, "to indicate the scope and limitations of the instrument." Again, in 1896, he read a paper "On Forceps with adjustable Axis-traction; and on Forceps for Occipito-posterior positions of the Vertex." In connection with this he advocated the use of a modification of the forceps with which his name deserves to be permanently associated, and which consists in having the traction-bar fitted on the traction-rods at different carefully measured distances nearer the handle or further from it, according as the operator has to deal with a pelvis whose inclination is less or is greater than normal. It is an instrument of precision, the product of a scientific mind.

It were long to tell of his many contributions to various journals on the subjects which interested him and which he succeeded in investing with fresh interest to others. Many volumes of our own *Transactions* bear testimony to his many-

sided industry. I might just refer, for example, to his paper "On some of the Physiological and Therapeutic effects of Water at different Temperatures, with special reference to Obstetric and Gynæcological Practice," which embodied the result of a research into the action especially of hot water on unstripped muscle. It was a model of scientific work and placed our employment of the hot douche as a hæmostatic on a physiological basis.

Dr Milne Murray was more than a frequent and always welcome contributor to our *Transactions*. He served the Society for six years as Secretary and for ten as Librarian. That congenial office he only resigned when he was promoted to the dignity of a Vice-President. In 1899 the Society conferred on him its highest honour by calling him to occupy the Presidential Chair. The diligence, the dignity, the courtesy with which he conducted our affairs gained for him the increased esteem and, I think I may say, the affection of all the Fellows. His summing up of a discussion was often singularly illuminative, and when he had occasion to criticise — and he could at times be a keen and trenchant critic—his criticism was never unkind. For there was a strong streak of generosity in his composition, and we do not wonder to be told that during his illness, few things gave him greater satisfaction than to hear of the success of others in work from which he was himself debarred. His more formal addresses from the Chair we all admired and enjoyed, pregnant as they were with instruction and presented with the charm of a rare literary skill. There are, perhaps, no more eloquent pages in the library of our *Transactions* than those in which, in his Introductory Address, he gave a *resumé* of the history of midwifery and pointed out its present imperfections, or where, in his Valedictory Address, he offered suggestions calculated, as he said, to bring "the results of obstetric practice more into line with the ideals of obstetric science." The eloquent voice is silent now. It will fall to others to seek to realise his beautiful

dream of what may be, but the memory of a life so unselfish, so strenuous and inspired by such high ideals will long remain as a stimulus to noble efforts. We all lament the loss we have sustained through Dr Milne Murray's death, and we extend our tender sympathy to his widow in her bereavement.

It is well that the man is present to-night who was his oldest and best and most intimate friend, and who has the best right, as he is the best qualified, to pronounce a fitting *éloge* on our departed comrade. In proposing, as I now do, that in tribute to Dr Milne Murray's memory we adjourn this meeting till the month of April, it is a relief to me to call upon Sir Halliday Croom to second my proposal.

Sir Halliday Croom, in formally seconding the motion, said he could not trust his feelings to add anything to what had been so eloquently said by Professor Simpson regarding his late assistant and esteemed friend.

Dr A. H. F. Barbour moved that a copy of Professor Simpson's speech should be sent to Mrs Milne Murray as a mark of the very high esteem in which Dr Murray was held by the Fellows of the Society, and as an expression of their very sincere sympathy with her in her bereavement.

Dr Proudfoot, as an old fellow-student and friend of Dr Murray, speaking with deep emotion, seconded the proposal.

Both motions were unanimously agreed to and the meeting was adjourned.

MEETING V. (ADJOURNED).—APRIL 13, 1904.

Dr N. T. BREWIS, *President, in the Chair.*

I. *Dr Haultain* showed (*a*) DOUBLE PYOSALPINX, with ovarian abscess and hæmatoma; (*b*) VERY EARLY COMPLETE CAST OF

UTERUS, with contained ovum; (*c*) FULL-TIME FŒTUS, retained forty-one years in the abdomen.

II. *Professor Jardine* (of Glasgow) showed a MODIFICATION OF BRAUN'S DECAPITATING HOOK. He said that in doing decapitations with Ramsbotham's hook in cases with contracted pelvis he had found considerable difficulty in getting the hook round the neck. Braun's hook was very easily applied, but if the lower uterine segment was thinned out, as it usually was, the twisting to break the neck might easily rupture the uterus. The hook he showed was a little wider than Braun's, but of the same shape, and in the inside of it was a sharp blade. He had used it three times and on each occasion had been able to do the decapitation in a few minutes.

III. *Dr Wm. Fordyce* showed (*a*) LARGE DERMOID OVARIAN CYST; (*b*) LARGE OVARIAN TUMOUR, with extensive adhesions.

IV.—CLINICAL NOTES OF A SERIES OF TWENTY-TWO CASES OF OBSTRUCTED LABOURS, INCLUDING EIGHT CASES OF INDUCTION OF LABOUR, FOUR CASES OF SYMPHYSIOTOMY, AND TEN CASES OF CÆSAREAN SECTION.

By ROBERT JARDINE, M.D., F.R.S.E., Professor of Midwifery in St Mungo's College; Physician to the Glasgow Maternity Hospital; Examiner in Midwifery to the Scotch Conjoint Board, etc.

DURING the past year my colleagues and I have treated 703 cases in the Glasgow Maternity Hospital, and in this number we have had to deal with 98 cases of contracted pelvis. This is certainly an extraordinary proportion, viz., about 1 in 7, and it does not by any means include all, but only those in which there

was difficulty in delivery. The slighter forms, where delivery was effected by nature, are not counted. In the following paper I purpose giving notes of the cases of induction of labour, symphysiotomy, and Cæsarean section, which were done during the six months in which I was in charge of the hospital. With one exception they were all cases of rickety pelves. The results as regards both mothers and children can be contrasted, and an idea can be formed of the relative value of the operations.

Cases of Induction of Labour.

Case I.—Mrs G., æt. 31, ii.-para, was examined under chloroform on 27th January. The conjugata vera was estimated to be 3½ in. The pelvis was generally contracted as well as flattened. The child's head could be easily pushed into the brim. As the patient was only seven months pregnant, and the head could easily be pushed into the brim, it was decided to allow her to go on for another fortnight. Her first labour had been terminated by craniotomy. The patient, unfortunately, did not return at the appointed time, and when labour was induced, one week later than the time set, the head could not be pushed through the brim. Krause's method was adopted and two sets of bougies were used, but the labour was very slow in coming on, taking fully four days. As the patient was showing some evidence of exhaustion, manual dilation was resorted to when the os was nearly fully dilated, and forceps were applied, but the head could not be got through in the Walcher position. Craniotomy was done. The child weighed 5 lbs., minus the brains. If this patient had returned at the time stated possibly the head would have come through, but I think I made a mistake in allowing her even a fortnight. It would have been safer to have had her back for examination in a week, but the head came down so easily that I concluded she could safely stand a fortnight more. The patient made a good recovery.

CASE II.—Mrs M'D., x.-para, æt. 33. The obstetric history of this woman is a somewhat remarkable one. Her first three labours were at home, and all the others in the hospital. The first child was born dead, spontaneously, at the seventh month; the second one spontaneously at full time, dead; the third spontaneously at the eighth month, also dead, the next five labours were by induction at the eighth month; the fourth and fifth children lived, the sixth died five hours after birth, the seventh was born dead, and the eighth lived five days; the ninth and tenth labours came on spontaneously at the eighth month, and the children both lived. The present labour was the tenth. The conjugata vera was $3\frac{1}{2}$ in.

The patient was admitted for induction of labour, but on the day following it came on spontaneously. Two hours after its commencement the membranes ruptured and the cord prolapsed. The os was fully dilated and the pains strong. During the pains the pulsations of the cord could not be detected, but in the intervals they were quite perceptible, but very slow, only 60. An unsuccessful attempt was made to replace the cord with the patient in the knee elbow position. She was then put deeply under chloroform, and when the uterus relaxed the head was pulled back from the brim by external manipulation through the abdominal wall, and the cord, which was now pulsating strongly, was replaced and the head was pushed well down into the brim. The uterus was then massaged and a firm binder applied. The labour was completed in an hour's time without assistance. The child, a male, was alive, and weighed $6\frac{3}{4}$ lbs. The patient made a good recovery.

Strictly speaking, one can hardly call this an induction case, but the woman's obstetric history is so interesting that it is worthy of record. Ten labours up to the age of 33 is a pretty fair record of itself, but as she has only had one full-time one she has gained at least one month in nine of her pregnancies, which gives her an advantage over ordinary women. I have in

several other cases found labour come on spontaneously shortly after the patients have been admitted for induction. The excitement probably has something to do with it.

CASE III.—Mrs L., ii.-para, æt. 20, conjugata vera 3½ in. This patient's first labour had been a forceps one, with a dead child. She was eight months pregnant. Two sets of bougies were used, and after two days, as the patient was beginning to show indications of exhaustion, chloroform was administered, the dilatation completed manually, and the delivery effected by forceps. The child, a female, was alive and survived. The mother made a normal recovery.

CASE IV.—Mrs G., iii.-para, æt. 25, conjugata vera 3½ in. The two previous labours had been very difficult forceps ones at full time, with live children. The deliveries had been so difficult that the patient was advised to have induction about the eighth month. Bougies were inserted, and on the following day a Barnes's bag, which rapidly induced contractions. The child, a male, alive and weighing 5½ lbs., was born by natural efforts. It seemed all right, but on the fifth day it died somewhat suddenly. The mother made a normal recovery.

CASE V.—S. G., single, iii.-para, æt. 22, conjugata vera 3¼ in. The first child had been born dead without assistance. The second had been delivered by craniotomy. Two sets of bougies were used. The child, a female, weighing 5 lbs., was born alive and survived.

CASE VI.—Mrs T., iii.-para, conjugata vera 3½ in. This patient had had induction successfully performed twice before. Bougies were inserted for twenty-four hours, and then taken out and eight hours later labour came on and child was born by natural efforts. It weighed 4¾ lbs., and was dead. This patient had been

under chloroform for the insertion of the bougies. Before the chloroform was given the child was alive, but no examination for the fœtal heart was afterwards made. The patient, however, was positive that she felt no movements after she became conscious. I remember one other case where the fœtal heart was quite strong before chloroform was given, and yet the child was born dead very shortly afterwards. This was a very easy forceps delivery, and there was certainly nothing in the delivery to have caused the death unless it had been the chloroform. I am inclined to think that chloroform may occasionally cause the death of the fœtus *in utero*, but as yet I have no evidence to offer on this point.

CASE VII.—Mrs P., iii.-para, æt. 30, contracted pelvis, c. v. by *post-mortem* measurement 3⅝ in. On 1st November bougies were introduced. Some hours later the patient's temperature rose to 99·8° F., and then fell to subnormal. On the 2nd it rapidly rose to 103° F., and the bougies were taken out. The labour soon after ended naturally, but the child was dead. An intra-uterine douche was given and the temperature quickly fell to normal, but it rose again to 102·8° F. in the evening. After that it kept up about 102° F., and finally rose to 105° F. on the seventh day of the puerperium, when the patient died. Throughout the lochia remained perfectly sweet, and there was nothing to indicate any septic infection.

The *post-mortem* examination showed that the heart was fatty and enlarged, the right ventricle dilated and thin. The pulmonary orifice was dilated, but all the others were normal. There were ante-mortem clots in all the cavities.

The lungs were emphysematous, but not consolidated in any way. There was no evidence of peritonitis. The lower 5 in. of the ileum appeared to be slightly congested, but on opening it there were no signs of any lesions of the mucous membrane. The uterus was enlarged, but its walls were quite healthy. The

interior contained some dark red pultaceous material, but this was not septic. The spleen was slightly enlarged, but of normal consistence.

Whatever caused the death, it certainly was not septicæmia. The fatty dilated heart probably gave out, but what caused her temperature? I must confess I do not know, neither do I know what caused her child's death. It was not a case of enteric as the Widal reaction was negative and there were no intestinal lesions.

CASE VIII.—Mrs T., æt. 25, iii.-para, conjugata vera 3¼ in. The first child was born at full time by forceps, and lived a fortnight, the second one was born by induction and lived eight months, but then died of diphtheria. On the evening of admission she was prepared for induction, and I intended demonstrating to the students the method of inserting bougies, but during the night labour pains commenced, and in the morning I found the os would admit two fingers, but the pains had ceased, so I introduced the largest Barnes's bag. It was expelled an hour later, and the labour was allowed to go on until the following day, when it was ended by forceps. The child was alive, and weighed 6½ lbs. It did well, and the mother made a normal recovery.

In this case I had seen the patient ten days previous to her admission, and after a careful estimate of the size of the head relative to the pelvis had concluded to allow her to go ten days longer. At the first examination the head had not presented, but by external version I had no difficulty in manipulating it round and easily pushing it into the brim.

REMARKS.

These constitute all the cases in which induction was done in the interests of the child, but there were several others where it was done in the interests of the mother, as for albuminuria and

exhaustion from severe vomiting. I have omitted these, as this paper is only dealing with cases of obstructed labour.

In his "Obstetrics," Whitridge Williams says: "At the present time, then, it seems to me that the only rational indication for the induction of premature labour, so far as concerns the existence of disproportion between the size of the head and the pelvis, is afforded by the rare cases in which the pelvis is normal, but the child abnormally large, owing either to excessive development or to an undue prolongation of pregnancy. If such a condition be diagnosed some weeks before labour, the operation is clearly indicated, particularly in multiparous women who have repeatedly given birth to very large dead children." Pinard considers the operation no longer justifiable, and advocates symphysiotomy at full time, and Bar, likewise, has abandoned it and recommends Cæsarean section at term, if spontaneous delivery does not occur. There can be little doubt that more children will be saved, but I do not believe that even in the hands of expert operators the maternal mortality will be as low as after induction of labour. I think most British obstetricians will agree with me that it is a perfectly justifiable operation in properly selected cases, especially in the hand of general practitioners who can hardly undertake such serious operations as symphysiotomies or Cæsarean sections. In hospitals it will probably be done less frequently in the future, but even there there is a place for it until, at all events, the mortality after the cutting operations has become much lower than at present.

As regards the cases suitable for induction they are practically the same as those for symphysiotomy. I have frequently induced labour with a conjugata vera of $2\frac{3}{4}$ in., but I am bound to say the results to the children have been far from satisfactory. The great point to decide the matter is the size of the head relative to the pelvis, provided that the child has reached an age at which it will have a good chance of surviving. At twenty-

eight weeks a child may live, and I have been able to bring up one at least a week younger than that, but the chances of its surviving are not very brilliant. In fact, to give the child a reasonable chance the thirty-second week should have been reached. The nearer full time the better.

If the head will not pass the brim at the thirty-second week, I think one should decide upon an operation at full time, preferably Cæsarean section. On the other hand, if the head can easily be pushed into the pelvis, we should wait, seeing the patient week by week, until the time comes, when the head enters the brim with difficulty. Labour should then be induced without delay. The method of judging of the size of the head relative to the pelvis was so recently described to you by Dr Munro Kerr that I shall not occupy time in going over it. To show the importance of observing the patient I would refer you to the *Scottish Medical and Surgical Journal* of October 1903, p. 291, where I describe a case with a $2\frac{3}{4}$ in. pelvis, which I allowed to go to full time with the result of a live child born by natural efforts.

There are certain cases where I am quite sure the vitality of the prematurely born children is too low for them to survive, although they are well developed and are born without difficulty. I remember one case where I induced labour three times running, and got live and well-developed children, and yet they died in a few days. There was no syphilis in the case. On the fourth occasion I refused to induce labour, and insisted on a Cæsarean section at term, and got a fine healthy child.

Cases of Symphysiotomy.

Case I.—Mrs D., iii.-para, æt. 19, was admitted in labour at full time. Her two previous deliveries had been by craniotomy, and on each occasion the child's head had been firmly ossified. The pelvis was a flat, rickety one, with a

c. v. of 3 in. The fœtal head overlapped the symphysis considerably.

The symphysis was opened in the usual way, cutting directly down upon it. Forceps was applied, and the head extracted without difficulty, with the patient in the Walcher position. The ends of the bones separated about 2 in. The child, a male, was alive, and weighed 7½ lbs. The symphysis was easily brought together and several strong catgut sutures were put through the fibrous tissue and the superficial wound was closed with silkworm gut.

The patient made a very good recovery for a week, when she developed bronchitis, which gave some trouble for a few days. A fortnight after the operation she developed incontinence of urine, which was treated by the insertion of a winged catheter for three days. After that there was no further trouble. She was dismissed quite well on the thirty-seventh day, able to walk without any inconvenience.

CASE II.—Mrs H., v.-para, æt. 29, was admitted from the outdoor department after failure to deliver with forceps. All her former children had been delivered by forceps with difficulty, one of them dead. The conjugata vera was estimated at 3¾ in. The head was large and would not engage.

Symphysiotomy was performed by my assistant, Dr Gibson. Considerable traction was required to deliver the child with forceps. It was a female, alive, and weighed 11½ lbs. The head was very large and square, the bi-temporal diameter being 3⅝ in., the bi-parietal 3¾ in., the sub-occipito-bregmatic 4 in., and the occipito-frontal 4⅞ in.

The patient made an extremely good recovery, and was dismissed quite well on the thirty-first day.

CASE III.—Mrs B., i.-para, æt. 24, was admitted after having been in labour for thirty hours. A midwife had been in

attendance all night, and the people stated that she had been most attentive and had examined the patient at every pain. She had ruptured the membranes five hours before the patient was admitted. The os was found to be dilated, and the head presenting but not engaging. It overlapped the symphysis considerably. The conjugata vera measured 3 in., the interspinous diameter 8¾ in., and the intercristal 8½ in., so we had to deal with a generally contracted as well as a flattened pelvis. The case was not a good one for symphysiotomy, but, on the other hand, it was an extremely bad one for Cæsarean section unless one did a hysterectomy. I therefore decided to do symphysiotomy. After cleansing the vagina as thoroughly as possible, I operated in the usual way, but while dividing the symphysis from above downwards I came upon solid bone about half-way down the joint. I was using a heavy Galbiati's knife, and tried to cut through the obstruction, and in doing so turned the edge a little towards the left side to see if it was merely a bend in the joint, as I had once before found in a case. The bone suddenly yielded, and the joint gaped. I found that the bone had given way into the obturator foramen, and at the same time the left ramus had fractured just about the junction of the ischium and pubis. The child was delivered with forceps. It was a female, alive, and weighed 7½ lbs.

During delivery the fractured end of the ramus caused a laceration into the vagina. The symphysis was brought together in the usual way, and also the fracture. To ensure drainage I plugged the vaginal tear with iodoform gauze. Contrary to my expectations the patient made a fairly good recovery. There was moderate pyrexia for a few days. The sinus was washed out carefully and the packing renewed daily for about a week. The patient was dismissed well on the forty-second day. The fracture had united, and there was a fair amount of callus, but nothing excessive. If this woman should come under my care again at full time, I think I shall do a Cæsarean section.

CASE IV.—Mrs M., iii.-para, æt 30. This patient's previous labours had resulted in dead children, the second one being at the seventh month by induction, I think. She was sent in by my colleague, Dr Munro Kerr. The conjugata vera was 3½ in. The os was fully dilated.

I operated at once. The child, a female, weighing 8½ lbs., was delivered alive with forceps, the patient being in the Walcher position. There was a good deal of tearing of the soft parts, and the bleeding was very free. I found the distal end of the urethra had torn away from the vagina. I was extremely lucky in getting a catheter into it at once, as it had retracted a considerable distance into the wound and could not be seen. I pulled it down and stitched it in position again. The symphysis was then closed and the wound firmly plugged with iodoform gauze to check the bleeding. The catheter was tied in and left for three days. After a couple of days the gauze packing was replaced by a drainage tube. There was some febrile disturbance for a few days, but the progress was satisfactory.

REMARKS.

I doubt very much if the operation of symphysiotomy will ever become a favourite one in this country. Personally I am not very much taken with it. I have now performed it six times successfully so far as the mothers were concerned, and with the loss of one child. In two of the cases the hæmorrhage was very severe, and in nearly all there was considerable laceration of the soft parts. It is impossible to prevent this laceration if you require much separation of the joint to allow of delivery, as the soft parts in the front are quite unsupported. In primiparæ this is especially the case, and they are much less suitable for the operation than multiparæ, who have relaxed vaginæ. Another drawback to the operation is the subsequent nursing of the case. To get union of the joint the

patient must be kept lying very still, and this is no easy matter, when her wants have to be attended to. The case is worse than a fractured pelvis, because the lochial discharge as well as the ordinary wants of nature have to be attended to. I know the nursing staff would sooner attend to three cases of Cæsarean section than one of symphysiotomy. Again, the length of convalescence required is at least two weeks greater than after a Cæsarean section.

There is no doubt that there is a slight permanent increase in the size of the pelvis, and subsequent deliveries may be accomplished by forceps. In my first case this was so, but I have not had an opportunity of testing this in any of the others.[1]

As to the length of the conjugate to which the operation is applicable, it works out very much the same as for induction of labour, and, roughly speaking, one may say that 3 in. is about the lowest limit, but the relative size of the head must always be borne in mind.

Cases of Cæsarean Section.

In the following ten cases Cæsarean section was performed. In two of the cases, which I shall give first, supra-vaginal amputation of the uterus was also done, and in both of these the children were dead before operating. The first case was done for extensive cancer of the cervix and the other nine for markedly contracted pelves.

Case I.—Mrs C., vi.-para, æt. 35, conjugata vera normal. Until within eight weeks of the time of admission the patient had not had any symptoms of special significance. From then she had been troubled with pretty severe pelvic pain of a

[1] Since this was written I have delivered by forceps a woman who has had symphysiotomy performed in her last two confinements. The child was saved, although the cord was prolapsed before the patient was admitted.

radiating character, and a reddish vaginal discharge. During the last week she had had several severe attacks of bleeding, and the doctor who had sent her in said that she had lost about 30 ozs. of blood that evening. She was near full time.

On examining her I found she was a very stout woman, somewhat anæmic from loss of blood. There was no fœtal heart to be heard. Fœtal movements had ceased for three days. A vaginal examination revealed that there was a large cancerous mass involving both lips of the cervix and extending out on to the vaginal wall, especially on the left side. The greater mass was in the anterior lip. The cervical canal admitted the finger, and the cancer was found to implicate the entire cervix, which was from 2½ to 3 inches in length. The head presented. There was some slight bleeding during examination.

It was quite evident that it was impossible to remove the entire cancerous mass, as it extended too far out on the vaginal wall, but after considering the case fully, I decided to operate at once and remove the uterus supra-vaginally, and thus control the hæmorrhage. It might have been possible to have scraped away the cancer to a sufficient extent to have allowed of delivery by craniotomy, but in doing so I was afraid the bleeding might cause the patient's death. As the child was dead there was, of course, no necessity of considering it.

On incising the thick abdominal wall there was no bleeding. I was so struck with this that I thought the patient must have died, but she was breathing well. There was the same bloodlessness in the uterine incision. I left the placenta in the uterus, cutting the cord off short, and as there was no bleeding did not apply clamps or an elastic ligature round the uterus. The cancer had spread upwards into the lower uterine segment, so the amputation incision passed through cancerous tissue. The stump was stitched and the peritoneum closed over it. The pelvic glands, especially on the left side, were deeply involved.

FIG. 1.

FIG. 2.

From photographs taken before dismissal. The chair she is holding by was 2 ft. 9 in. in height.

[Face page 147.

FIG. 3.

From photograph taken before dismissal.

[*Face page* 147.

The loss of blood was extremely small. A quart of normal saline solution was left in the peritoneal cavity. The child weighed 9½ lbs.

The after progress of the patient was satisfactory, but during the third and fourth weeks there was feverishness partly from absorption from the cancerous mass, but also from the sloughing of a burn on the thigh caused by a hot-water bottle after the operation. The patient suffered no pains in the pelvis, and the cancerous mass shrunk to a certain extent. She went home on the twenty-eighth day, and was still alive two months later, but I am afraid she could not survive much longer.

CASE II.—B. S., an unmarried rickety dwarf, æt. 23, c. v. 1½ in., was brought into hospital from the country. She had been in labour for a considerable time, and the cord was prolapsed and quite pulseless. The patient was 3 ft. 7½ in. in height and very markedly deformed, as will be seen from her photograph (see Figs. 1, 2, and 3). The conjugata vera was a little over an inch and a half. Even with a dead child, craniotomy was out of the question, so there was nothing for it but an abdominal section, although the patient was anything but a good subject. As the chances were that the uterus was septic, I determined to amputate it. I operated as soon as she could be prepared. There was very little blood lost during the extraction of the child, and none afterwards, as I at once clamped the uterus low down. The ovaries were both healthy, so I left them. The patient stood the operation well. She had a somewhat febrile recovery, and developed a couple of stitch abscesses, and later on a large abscess under the outer edge of her right breast, which burrowed under the scapula and pointed in the back.

CASE III.—Mrs P., æt. 27, ii.-para, c. v. 2½ in. Just ten months previously this patient had been delivered in the hospital

of a 4½ lb. child by craniotomy after a midwife and a doctor had failed to deliver her at her home. She was extremely rickety, with a true conjugate of barely 2½ in.

When she was about three months pregnant this second time I saw her and advised her to have Cæsarean section done. She was to have come to the hospital on 1st June, but did not turn up; however, on the evening of that day she sent me word that she was having pains. According to her dates the labour was not quite due. I saw her at home, and found the os was beginning to dilate, so at once sent her into hospital to be prepared for operation. I noticed that she was very stout, but, as she was fully dressed, I did not palpate her abdomen, so did not diagnose twins.

Two hours after admission I operated. Just as I was about to begin the abdominal incision she stopped breathing. The tongue was pulled forward and artificial respiration commenced, but there was no effort at gasping, so I quickly opened the abdomen and cut into the uterus. The placenta was situated anteriorly, and the first sweep of the knife was followed by a large spurt of blood, and the patient at once gave a gasp. The uterine incision was quickly enlarged and a child removed, and I then found there was a second one. Both children, males, required to be resuscitated. They each weighed 4½ lbs., and were so much alike that afterwards nobody could tell which had been born first. If they had been children of aristocratic parents, and had survived, I am afraid there would have been difficulties in settling the point. As it was, the registrar was very indignant that we could not tell which was the elder of the two. I advised the nurse to tell him that according to Shakespeare they were never born at all, but were, like Macduff, from the "mother's womb untimely ripped." I do not know how he settled the point.

The patient breathed quite well after the uterus was emptied, and gave no further trouble. The operation was finished in the

usual way, and as the woman wished it I tied and cut her tubes.

The children seemed to thrive for two weeks, and then they suddenly began to pine, and one died on the eighteenth and the other on the twenty-first day.

I had once before had the unpleasant experience of failure of breathing just as I was beginning the uterine incision, and in Case V. the same thing happened. In all of these cases the abdomen was very tense. In the first case artificial respiration was kept up for some minutes, and I thought the patient was dead, so quickly opened the uterus to save the child. The mother then breathed at once. In the other cases I did not wait any time, but went on with the operation, while the assistants were doing the artificial respiration. The free flow of blood helps the circulation by relieving the engorged heart, and the relief of pressure upon the diaphram allows of free play to the lungs. In cases of great distension I think it would be advisable to rupture the membranes immediately before beginning the operation.

The patient made an uninterrupted recovery.

CASE IV.—Mrs H., æt. 27, i.-para. This patient was admitted after having been in labour for twelve hours. The conjugata vera measured 2¼ in. She was at once prepared for section. The membranes ruptured before the operation. There was nothing to be remarked about the operation except that the uterus remained very flabby and did not retract well until it was replaced in the abdomen after it was sutured. The Fallopian tubes were not tied. The child, a female, was alive, and weighed 5¼ lbs.

The patient made an excellent recovery except that there was a stitch abscess, which, however, healed quickly.

CASE V.—Mrs O., ii.-para, æt. 25, conjugata vera 2¼ in.

This patient's first labour had ended in a craniotomy. She was very rachitic, being only 4 ft. 2 in. in height. Her intercristal and interspinous diameters were the same, 9¾ in., and the diagonal conjugate 3 in. She had suffered from chronic bronchitis for many years, and was in the hospital under treatment for this for eleven days before the operation was done. I was anxious to operate upon her during daylight, as I have found that in operating at night with the gas burning right over the table there is a good deal of decomposition of the chloroform, which causes bronchial irritation. On examining her on a Friday I found the os was patent, although there had been no pains, so I had her prepared for operation on the Saturday morning. During the night the pains came on. On the Saturday morning there was, unfortunately, a very dense fog, but as labour had commenced I was forced to proceed with the operation under the worst possible conditions for the patient. She took the chloroform badly, and just as I began the abdominal incision she stopped breathing and seemed to be dead. The tongue was pulled forward and artificial respiration begun while I went on with the operation. As soon as the uterus was opened breathing commenced, and we had no further trouble. Her tubes were tied and cut. The bronchitis was bad for several days, but otherwise the recovery was uneventful. Her baby, a girl, weighed 7¼ lbs., and she was able to nurse it.

CASE VI.—Mrs C., ii.-para, æt. 22, conjugata vera 2¾ in. The first delivery had been by craniotomy. The pelvis was generally contracted as well as flattened. She was admitted in labour and was operated on at once. The membranes were extremely adherent, and to get them away I inverted the uterus through the incision. I did not tie her tubes. The child, a boy, weighed 7¾ lbs., and she was able to nurse it. Her recovery was uneventful.

Cases II., V., and VI., were all operated on within fourteen hours.

CASE VII.—Mrs H., v.-para, æt. 35, conjugata vera 2¾ in. This patient's first child had been born at full time, dead, either by forceps or craniotomy; her second, at full time, dead, a breech, craniotomy on after-coming head; her third at the seventh month, dead, by forceps; and her fourth at full time by craniotomy. With such an obstetric history it was time for a Cæsarean section. Labour commenced on the day following admission. The operation was done as soon as possible after the pains commenced, but the membranes ruptured about an hour before I began. The only point to be noted about the operation was that the membranes were extremely adherent. To get them cleared off I inverted the uterus through the wound. The upper half of the abdominal incision was protected by a large gauze swab between it and the uterus. The report says the tubes were not tied, but I have an impression they were. The child, a boy, weighing 9¾ lbs., was alive. Three hours after his birth pus was observed to be streaming from one of his eyes, although a 2 per cent. silver nitrate solution had been instilled. It was a very typical case of ophthalmia neonatorum, and the infection must have occurred *in utero*. When I discovered this I had grave doubts of the mother's recovery, and was not astonished to find her temperature rise to 101·2° F. It remained above that height for five days, and then gradually came down to normal. There was a great deal of abdominal distension. On the sixth day I washed out the uterus and dressed the abdominal wound. The wound seemed to be healing nicely, and there was no redness with any of the stitches. Two days later some discharge was found at the edge of the dressing, and on removing it the lower half of the wound was found to be sloughing very badly. The stitches were all removed and a wet dressing applied. The patient's temperature was now normal. On examining the parts carefully next day I found the upper half of the wound healed, but the lower half gaping fully an inch wide and sloughing badly. Towards the left a sinus ran down-

wards and outwards for fully 3 in. There was also some undermining at the lower edge of the wound. The floor of the cavity was formed by the anterior uterine wall, and the catgut sutures were still present. The uterine incision was firmly healed. The portion of the abdominal incision which had sloughed exactly corresponded with the part which the inverted uterus had come in contact with. When the slough had separated I dressed the part with strips of iodoform gauze plugging steeped in Hey's wash. The parts soon took on a healthy action and gradually closed, but it took two months before this was completed. The patient was very well when she left the hospital, and her temperature was never above normal after the stitches had been taken out. The ophthalmia subsided after a few days' treatment, and the baby throve well.

The whole of the anterior wall of the uterus was firmly adherent to the abdominal wall. If she should require another section it can easily be done extra-peritoneally.

CASE VIII.—Mrs G., i.-para, æt. 25, conjugata vera 2½ in. There was nothing to note about this operation. The tubes were not tied. The baby, a girl, was alive, and weighed 5¾ lbs. The recovery was uneventful, the temperature remaining normal throughout. The child throve splendidly.

CASE IX.—Mrs A., æt. 26, iii.-para, conjugata vera 2¾ in. This patient's two previous children had been delivered dead by craniotomy, I think. Both she and her husband were anxious that I should sterilise her, if the baby was alive and healthy. The child, a boy, weighed 8 lbs., and to all appearances was a splendid specimen. Several of the men present at the operation remarked this. I, therefore, tied and cut the tubes. The patient made a perfectly normal recovery. On the second day the baby became intensely jaundiced, and died on the following day. A *post-mortem* examination did not reveal anything

except that all the organs were bile-stained, and the liver was enlarged.

CASE X.—Mrs M., æt. 23, ii.-para, conjugata vera 2¼ in. This patient's first child had been delivered by craniotomy. She was sent into the hospital from some distance in the country in labour. The os was nearly fully dilated, but the pains were not very strong. A hypodermic injection of ⅛ gr. of morphia was given to lessen the pains while the abdomen was being prepared for section. The membranes had ruptured before the operation was commenced. There was nothing to note in the operation except that the uterus remained very flabby until it was returned into the abdomen. The child, a female, weighed 6½ lbs., and throve well. The mother's tubes were not tied. The recovery was uneventful.

REMARKS.

In performing the operation the method which I have adopted is to make an abdominal incision of about 5 in. in length high up, so that about two-thirds of it lies above the umbilicus, and then to incise the uterus longitudinally in the middle of the anterior wall so that the top of the incision will be at the fundus. I generally use Cameron's pessary to prevent bleeding from the uterus while incising it. The child is delivered by grasping one leg. The old notion of the incision grasping the aftercoming head is fanciful. I have only once experienced difficulty in delivering the child, and that was in a case where the membranes had been ruptured, and the retraction ring had grasped the child round the neck. It required considerable force to dislodge the head. In nearly every case the child requires to be resuscitated. This may be partly due to the chloroform, but I think the sudden reduction of temperature in the uterus when the abdomen is opened may so stimulate the child as to cause it to make inspiratory efforts and thus draw liquor amnii into its lungs. I have more than once

emptied several ounces of liquor amnii from the lungs by inversion of the child.

As regards the position of the placenta it has been on the anterior wall in nearly nine-tenths of my cases. In the ten just recorded I came either directly on to it or on to its edge in every one of them except in Case I. where it was on the posterior wall. When it is in the anterior wall the hæmorrhage will be a little greater, but it can be easily controlled. As a rule, the hand is not passed through the placenta, but round its edge by stripping it off.

In all of the cases recorded I used catgut sutures for the uterus, and silk to tie the tubes. I have tried silk and also celluloid thread for the uterine sutures, but in many of the cases the sutures worked out long afterwards and gave great trouble to the patients. When catgut is used it should be tied very firmly, as there is risk of it becoming untied. I have known this happen and cause the patient's death from hæmorrhage. The sutures do not include the mucous membrane.

The uterine incision I have always practised is a high longitudinal one. The fundal incision I have never taken to, and after a case I saw recently in the hands of my colleague, Dr Munro Kerr, I have less love for it. The patient had not been sterilised, and just at the onset of labour in the next pregnancy the old wound gave way and the intact ovum was extruded through the fundus into the abdominal cavity. The uterus had retracted well and there was little bleeding. The patient recovered after hysterectomy, but the child was, of course, lost.

The operation is usually done after labour has commenced, but one need not wait for the actual labour pains. I have several times operated before active uterine contractions had commenced. In such cases, if the uterus is to be left, the os should, of course, be sufficiently dilated to allow of free drainage. The woman is thus saved the exhaustion of labour, and one can

select a suitable time for the operation during the day instead of being hurriedly called perhaps in the dead of the night.

In suitable cases Cæsarean section is an operation which may be done with comparatively little risk if proper aseptic precautions are taken. If the cases can be admitted a few days before full time so as to have them properly prepared for operation one may confidently expect a good result, but, unfortunately, many of the patients are only admitted after labour has been going on for a considerable time. The risk in such cases is greatly increased, especially if the patient has been repeatedly examined in the usual haphazard way without proper aseptic precautions. I have never lost a case which I have had under observation for a few days prior to the operation, and I now make a rule not to do a section if the patient has been repeatedly examined prior to admission, unless there is an absolute indication, as in Case II., and then the uterus should be removed. I remember one case which was admitted after several examinations had been made by a midwife and two doctors. The child was alive, but I decided to do a craniotomy. By the second day the patient had developed violent sepsis, and I am quite sure that if section had been done and the uterus left, the patient would have been dead within forty-eight hours. If there is any septic vaginal discharge the uterus should be removed.

The question of sterilising the patient is a very important one. In this series of cases I tied and cut the tubes when specially requested, to prevent future pregnancies. If the husband and wife are both desirous of having this done, I think one is perfectly justified in doing the operation, and as these patients are usually very prolific it comes to be a serious business for a woman to require such a major operation, say, every two years or so. I have not yet had to repeat the operation, but in the event of having to do so, I think, I shall

take steps to prevent any future pregnancies. Tieing and cutting the tubes I have found quite effectual, and it should be so, if it is properly done. Some operators advocate the removal of the uterus in all cases in which it is advisable to sterilise the patient. Herman advocates this, and says, "except for child-bearing the uterus is useless; it is liable to disease, and it menstruates, which is a monthly illness." He also advocates the removal of the ovaries because they "may become cystic." It is true that child-bearing is the chief function of the uterus, but I do not believe that this is its only function. To call a strictly physiological process like menstruation an illness seems to me to be as unscientific as to urge as a reason for removal of the uterus and ovaries that they may become diseased. To unsex a woman in the prime of life is an unjustifiable proceeding, unless the step is rendered necessary by disease. If the removal of the uterus will lessen the risk of the operation then it should certainly be removed, as was done in Cases I. and II., but in ordinary cases it should be left. If the ovaries are healthy one or both should be left.

Dr James Ritchie said that although he had no practical experience of operative work, he had fully appreciated Professor Jardine's well balanced statements in relation to the methods of interference with which he had dealt. From his reading, he had formed the conclusion that symphysiotomy, because of its attendant dangers and difficulties, had a very limited sphere. He believed that with modern precautions Cæsarean section was a safer operation. With regard to the induction of premature labour he asked Professor Jardine if he did not consider the hot bath and hot douche to be a safer method than the use of bougies, and that the latter should be used only when the former failed. He thought that in view of the very frequent use of chloroform in midwifery, without the life of the child being affected, chloro-

form could hardly be blamed for the death of the child in the cases referred to.

Professor Jardine, in reply, thanked the Fellows for the kindly way in which they had received his paper. In answer to Dr Ritchie he said he had not used hot baths for inducing labour except in cases in which labour had ceased after admission at full time, in such cases a hot bath usually brought on the pains. He had never seen a case of appendicitis during pregnancy. The relative size of the head to the pelvis could easily be tested with the patient under chloroform. In the case of ophthalmia no examination had been made for gonococci, but to all appearances it was a typical case. The infection of the abdominal wound where the inside of the uterus came in contact with it, was very remarkable. He had once seen a case of ophthalmia where there was pus in the eyes at the time of birth. In regard to sterilising the patients, he thought that the uterus ought to be left, unless it was diseased, and under disease he, of course, included sepsis. It was easy to palpate the placenta if it was on the anterior wall. He generally expected to find it there, but he did not vary his incisions on that account. He mentioned that there were at least six cases waiting for section within the next three months.

V. THREE CASES ILLUSTRATING THYROID RELATIONS IN GYNÆCOLOGY.

By R. Cochrane Buist, M.D., Dundee.

The interest awakened by Dr Oliphant Nicholson's thesis as to the influence of the thyroid in eclampsia gives a special value to the study of pregnancy in myxœdemics; but in spite of the fact that Dr Ord says that myxœdema does not exclude pregnancy, records of such cases are almost absent from the literature. With the exception of Herrgott's case (*Annales de Gyn. et d'Obstét.*,

July 1902), I can find none. For this reason it seemed advisable to record the facts observed in a case recently under my care, and I have taken the opportunity of adding short notes of two other cases of thyroid disease from my practice. Herrgott's patient, an under-developed woman of 18, was, when admitted to hospital on account of her narrow pelvis, found to be in early labour, and during labour she had a series of twelve eclamptic fits and eight after she was delivered. She had no albuminuria, save a trace. My patient was treated with thyroid which had a marked diuretic effect, and whether owing to this or not she had no eclampsia.

Myxœdema, Cystocele and Prolapse—Ventrifixation.

Mrs B. B. (54) was admitted to my ward desiring operative treatment for a prolapse which had begun fourteen years before, and which had been partially retained by an instrument for five years. As she presented in typical form the lethargy and slow speech, the swelling, the cyanosis of cheeks and lips and the harsh skin and loss of hair, characteristic of myxœdema, she was transferred to the medical ward under Dr Mackie Whyte's care for the initiation of thyroid treatment. During the next month she lost nearly a stone in weight and her heart sounds became clear and stronger, the skin and mental symptoms improved greatly. The pulse had quickened from 56 to 84. On 28th April 1901, the skin of the abdomen in the mid line above the pubis was infiltrated with 1-1000 cocaine solutions. The incision of the abdominal wall was then made without pain. The handling of the peritoneum, and specially the traction on the uterus caused pain, so that the rest of the operation was conducted under chloroform anæsthesia. The fundus was attached to the abdominal wall with two silk sutures, and the wall then closed with 8-form sutures of silkworm gut. The after history was absolutely without untoward incident. The skin sutures were removed in a week, the wound being fully healed, and in three weeks she

went home to continue the thyroid treatment under the supervision of her own doctor.

Myxœdema Pregnancy.

Mrs C. (48) came to the out-patient department complaining of passing very little water, of pain in the belly, and of throbbing in the "womb." She had had eleven children the last eight years ago, and afterwards three miscarriages the last two years ago. Her last period came three months ago. She showed the characteristics of myxœdema in her hebetude, slow high pitched speech, swelling in face and limbs, and the dark flush on her cheeks. Her umbilical measurement was 43 in. and the pelvic condition could not be distinctly defined. She was admitted for the treatment of the myxœdema. She went home after ten days but even under 10 grains of thyroid extract a day she had begun to show improvement. At home she increased the dose of thyroid to 20 grains daily, and her general condition improved; but the swelling of the abdomen continued to increase. In August a firm body was found on the right side of the abdomen below the umbilicus. It could be moved with some freedom, but no spontaneous movement was observed, and she was advised to come back to the infirmary. The swelling increased and she came into the infirmary in the end of October. Two points were at once evident—that the myxœdema was much improved and that she was pregnant. She stayed in nineteen days. For the first two weeks the thyroid was stopped. During this time her temperature was never over normal, the pulse ranged from 60 to 80 and the urine measured about two pints daily. After the thyroid was resumed in the daily dose of 10 grains, the pulse rate rose a little but there was a marked increase in the daily quantity of urine. Patient went home for domestic reasons and was delivered spontaneously a month later. By the assiduity of Dr H. L. Murray and Mr W. H. Simpson I am able to give an

adequate record of the urine which will be seen in the adjoined table. The patient has continued well and is still taking thyroid.

URINE

Date.	Quantity.	Sp. Gr.	Urea.	Urea.
	Oz.		Per cent.	Total gr.
Nov. 3 . .	43	1·018	1·2	215
„ 4 . .	...	·022	1·5	...
„ 5 . .	35	·022	1·3	...
„ 6 . .	35	·018	1·4	...
„ 7 . .	37	·020	1·5	259
„ 8 . .	42	·022	1·3	241
„ 9 . .	32	·022	1·4	...
„ 10[1] . .	35	·015	1·2	175
„ 11 . .	50	·020	1·1	237
„ 12 . .	49	·016	1·3	292
„ 13 . .	62	·025	1·1	310
„ 14 . .	52	·009	·9	208
„ 15 . .	...	·020	1·5	...
„ 16[2] . .	...	·022	1·6	...
„ 17 . .	20	·020	1·5	...
„ 18 . .	40	·022	1·6	320
„ 20 . .	...	·020	1·8	...
„ 24 . .	...	·024	1·6	...
Dec. 10 . .	...	·028	1·7	...

[1] Thyroid resumed 10 gr. daily. [2] Patient went home.

From 20th November the daily quantity of urine varied from three to four pints.

13th December.—Labour.

Thyroid Enlargement in successive Pregnancies.

Mrs M. (37) was seen in her twelfth pregnancy. Of the previous eleven one miscarried, and of the others only one living child resulted—the labours being always difficult. During the last three or four she has suffered from a swelling in the neck which has each time increased during the pregnancy, until it

caused difficulty in breathing, and it has got less afterwards. There is enlargement of the thyroid mainly in the right side which feels cystic. The last menstruation was in September 1892, and labour occurred on 7th July 1893. The child was very large and was delivered after turning with great difficulty, and was dead. The patient had a smooth puerperium, and some months later the thyroid had considerably decreased, and she had no difficulty in breathing. I saw the patient again in 1903 and found her with a very large tumour in the neck which was swollen up to both ears. It was hard and was causing great difficulty in breathing, and she died apparently from suffocation before the surgeon whom I sent to her arrived. No autopsy was obtained, but the external appearances of the tumour left little doubt as to its malignant character.

I have added this case merely to complete the record of my scanty clinical acquaintance of the relations of thyroid disease to pregnancy. I regret that the details which I can furnish are so inadequate.

VI. DEMONSTRATION OF NAKED EYE AND MICROSCOPIC SPECIMENS, ILLUSTRATING THE INFLUENCE OF A PURE MEAT DIET ON THE THYROID AND PARATHYROID GLANDS.

By Dr Chalmers Watson.

Mr President,—I almost feel as if an apology were necessary for one who is a mere general physician, and whose interest in obstetrics and gynæcology is entirely of an academic rather than a practical nature, taking part in a purely obstetric meeting. But I thought that it might interest the members of the Society to see some specimens which bear closely on the title of Dr Buist's paper, and which have, I believe, some practical obstetric importance. These specimens represent some results

of an experimental investigation on gout, which consisted in feeding a number of fowls for fifteen months on a diet strictly limited to raw meat and water. So far as the induction of gout was concerned, the experiment was unsuccessful; but a fact of much greater interest and importance was ascertained, *i.e.*, that this diet had induced a remarkable degree of hypertrophy of both the thyroid and parathyroid glands; and further that their appearances were associated with striking changes in another internal secretion—the bone marrow.

These facts have an interesting bearing in other directions:—

Thus (1) It is now known that in animals from which the thyroid and parathyroid glands have been removed, the severity of the subsequent symptoms is much mitigated by putting the animals on a milk régime as opposed to a meat dietary; and

(2) The value of milk diet as a therapeutic agent is well known both in general and in obstetric medicines, in the latter, I believe, more especially in connection with the treatment of eclampsia. The specimens shown under the microscope suggest that the favourable influence of this milk régime is, at any rate, in part due to the result of an indirect action on the activity of the thyroid and parathyroid glands. If this interpretation be the correct one, then an important advance in our knowledge is attained.

Now it is probably essential to correlate the changes observed in the thyroid in pregnancy, with certain other changes. In gestation we have, at least, three striking phenomena in the internal secretions, which are classified among the physiological signs of pregnancy. We have:

(1) The fact of the thyroid enlargement in pregnancy. The researches of Lange, Verstractin, and other investigators, have shown the importance of this, and have apparently clearly indicated that this sign has some prognostic significance. This enlargement of the gland can only be regarded as the result of a stimulation of its function.

(2) The pigmentations in the skin. It is only necessary to mention this to show that we have here a profound disturbance in the activity of a second internal secretion, viz., the supra-renal glands. So far as I am aware, the evidence does not enable us to say whether this is the result of an increased or diminished function; and that

(3) The leucocytosis of pregnancy need only be cited as clear evidence of an increased functional activity of a third internal secretion, viz., the bone marrow. In this connection it is interesting to refer again to the bone marrow changes under the microscope, which show that under the meat diet, the functional activity of the bone marrow, *re* leucocyte productions, had become almost completely exhausted.

Now, sir, it may be permissible to ask whether we sufficiently consider these changes from the standpoint of modern pathology, which teaches us more and more to regard the internal secretions as factors of great importance in immunity. And if this teaching of modern pathology be correct, then we are driven to regard these changes in the internal secretions as protective mechanisms. And if so, and herein lies the practical application of the foregoing, then we must expect that the line of advance for studying such problems as eclampsia, will be the search for the causes in the fœtal or maternal organism which call out these reserve forces in the natural defences. It has often occurred to me, as an onlooker, that obstetric physicians have it in their power, to an extent greater than many other investigators, to add materially to our knowledge of the rôle which the various internal secretions play both in health and disease.

Dr Nicholson said he was greatly indebted to Dr Buist for his most interesting communication. For some time he had been investigating the relationship between thyroid metabolism and certain acute symptoms, which sometimes developed during the course of pregnancy, and a good deal of evidence—both clinical

and experimental—bearing upon this matter had now been published. The influence of the animal proteid in food upon the thyroid secretion had been pretty fully investigated by several workers in Professor H. Munk's laboratory and elsewhere, and the remarkable results obtained by Dr Watson in his recent experiments, were full of significance. It seemed to him that the important bearing of all this work on clinical obstetrics and gynæcology had not been sufficiently recognised—clinically, far too little notice had been taken of the results of certain experiments on thyroidectomised animals. Thus it had been shown that a thyroidectomised dog very readily developed acute toxic symptoms when fed on meat, which symptoms disappeared when it was fed entirely on milk, and Horsley had noted that some patients suffering from goitre (hypothyroidism) were apt to develop symptoms of auto-intoxication when their dietary contained too much animal proteid. In such cases it would appear that proteid food used up too much of the scanty supply of thyroid secretion, and this form of diet also yielded very little iodine, which substance had been shown to be necessary to the gland for the elaboration of the active principle in its secretion. Hence in Dr Watson's experiments, a pure meat diet led to a very marked hypertrophy, both of the thyroid and parathyroid glands, which clearly indicated, that under such conditions, these glands were overtaxed in their duties, and were called upon to supply an increased amount of secretion to meet the altered metabolism, consequent upon such a dietary. When milk was substituted for meat, the demands upon the thyroid secretion were greatly lessened, and to his mind nothing was so striking in the therapeutics of pregnancy as the remarkable influence of an exclusive milk diet in the prophylaxis of eclampsia. It seemed extremely probable that in the relation of nitrogenous food to the thyroid secretion, one would find the explanation of the success of this treatment. Hence the administration of thyroid extract in such cases rested upon a rational basis, and

thyroid activity could likewise be stimulated by the use of iodide of potash, which yielded iodine to the gland for the manufacture of its secretion.

Dr James Ritchie expressed to Dr Chalmers Watson the thanks of the Society for his very interesting demonstration regarding the influence of diet on the thyroid and the bones of the fowl. Although it caused such a marked hypertrophy of the thyroid, and, presumably, a marked increase of secretion, that increase was not sufficient to affect the proper adjustment of the excretory organs during pregnancy. During pregnancy danger arose probably rather because of an insufficiency of the excretory organs than on account of a failure of thyroid function.

MEETING VI.—MAY 7, 1904.

DR N. T. BREWIS, *President, in the Chair.*

I. The following gentleman was elected an Ordinary Fellow of the Society:—T. W. E. Ross, M.B., Ch.B., Maternity Hospital, Edinburgh.

II. *The President* showed (*a*) LARGE SOLID MALIGNANT TUMOUR OF THE OVARY; (*b*) DERMOID OVARIAN TUMOUR removed from a child, strangulation of the pedicle being apparently caused by skipping; (*c*) LARGE INTRA-LIGAMENTOUS FIBROID TUMOUR; (*d*) TWO UTERI WITH APPENDAGES, removed for cancer; (*e*) UTERUS AND APPENDAGES removed for tuberculous salpingitis. With reference to the case of solid Ovarian Tumour, Dr Brewis related some unusual clinical features. The patient is an unmarried woman of 30. She first felt a lump in the abdomen a month before the tumour was removed. A fortnight later she came under his care on account of the tumour,

and of extensive œdema affecting the abdomen and both lower extremities. There was no cardiac or renal lesion though the urine was somewhat scanty. Drainage with Southey's tubes caused no appreciable diminution in the œdema, the cause of which was attributed to direct pressure by the tumour on the vena cava. Early in the morning of the day fixed for the operation of removal of the tumour, the patient was suddenly seized by great thoracic distress—pain over the region of the heart and inability to breathe. Severe syncopal attacks supervened, and the patient's condition became so critical that it was not thought she would live till morning. The operation was arranged to take place at eight in the morning, and when Dr Brewis arrived at that time he found on auscultation loud pericarditic friction. The friction was so well marked that it could be felt by the hand. Dr James who kindly saw the patient thought the friction was due to upward pressure of the tumour, and advised an incision to relieve the abdominal tension. This was done, and such improvement in the pulse and breathing followed that the operator was able to remove the tumour. About twelve hours later the pericarditic friction could only be faintly heard, next day it had disappeared, and a few days subsequently the legs and abdomen had returned to their natural size. The tumour weighed 19 lbs., was solid throughout with the exception of a small cavity in its centre formed by broken-down tissue. Microscopic sections showed the tumour to be a soft cancer.

III. *Dr Barbour Simpson* showed (*a*) SIREN FŒTUS WITH HYDROCEPHALUS AND SPINA BIFIDA; labour presented nothing worthy of note: two vessels present only in cord. (*b*) ANENCEPHALIC FŒTUS, delivered at full time: interesting on account of maternal impressions received before conception had taken place. A married sister beforehand had aborted at the fifth month, fœtus having a mere vestige of head present, and this

had been seen by patient some three months before her own marriage.

IV. *Professor Simpson* showed a BRONZE PLACQUE struck in commemoration of the fiftieth anniversary of the foundation of the Leipzig Obstetrical Society, which was celebrated on the 23rd of April. The placque had been designed by a young member of the profession who was also a brilliant artist, and a copy of it in silver had been presented to Professor Hennig, the only survivor from among the original members. He (Professor Simpson) had the gratification of being present at the celebration as an Honorary Fellow of long-standing. There had been a large representation of the various German Obstetrical Schools and Societies to offer congratulations, and he had been given the opportunity at this festival dinner to express the good wishes of their Scottish brethren for the continued prosperity of their Society. He could do this the more heartily, that among the few foreign obstetricians whom they had added to their roll, a special place was given to two of their own Fellows, Drs Berry Hart and Freeland Barbour.

V. *Dr Fordyce* showed FIBROID AND PAROVARIAN TUMOURS, removed from the same patient.

VI. MALIGNANT UTERINE COMPLICATIONS OF FIBRO-MYOMATA OF THE UTERUS.

By F. W. N. HAULTAIN, M.D., F.R.C.P.E., Assistant Gynæcologist to Royal Infirmary, Edinburgh.

THE association of fibro-myomata of the uterus with malignant changes in the same organ, is a subject of considerable interest and importance.

Until recently not only was their coincidence considered rare, but it was actually thought that the mere presence of a fibro-myoma prevented the development of cancer. Now, on the other hand, some observers, such a Richelot, assert that fibroids really predispose to malignancy.

The reason for these contrary beliefs is not far to seek—"The wish is father to the thought." In earlier days the removal of fibro-myomata was such a dangerous proceeding that it was satisfying to the physician to think that though his patient was invalided by a fibroid, she would not become the subject of the infinitely more dangerous condition of cancer. Now, however, the intrepid gynæcologist, glorying in the success of modern surgical technique, loves to believe that fibroids pre-eminently predispose to malignancy, and must without exception be removed, as their presence, even without symptoms, is a constant menace to the future welfare of the individual.

As is usual with such divergent views, mature deliberation tends to direct us midway between the two extremes, and from experience and investigation there seems to be little doubt that the two conditions of malignancy and fibro-myomata have an almost entirely independent origin, and but slightly affect one another. The exception to this statement, *i.e.*, where they may be said to actually depend on one another, is the malignant degeneration of the fibroid itself, which is an extremely rare occurrence.

The subject of malignancy and fibroids may be considered from the following standpoints:—

1*st.* Malignant degeneration of fibro-myomata.

2*nd.* The coincidence of carcinoma or sarcoma of the uterine mucosa with fibro-myomata.

3*rd.* Malignant changes in the cervix after supra-vaginal hysterectomy.

Malignant Degeneration of Fibro-myomata.

That fibro-myomata may become secondarily malignant is generally admitted, though it is by no means so common as might be inferred. Authentic, thoroughly proved cases of sarcomatous change in a pre-existing fibroid are few, yet it is probable that all cases of encapsulated sarcomata are degenerated fibro-myomata. The following case shows clinically and pathologically the main features of such a transition, and is therefore worthy of detailed description:—

Miss B., age 71 (recommended to me by Dr Helm, of Carlisle), suffered from great abdominal pain, hæmorrhage and fœtid discharge associated with rapid abdominal enlargement. Menstruation ceased at the age of 52, but for twelve years previously to this the flow had been profuse and exhausting, and was accompanied by considerable abdominal distension, and the presence of a hard swelling.

After the climacteric, the swelling subsided and she was in excellent health until six months previous to her visit to me. On examination the uterus was found to be enlarged to the size of a six months pregnancy, and there protruded into the cervix a large rounded mass involving the entire posterior wall of the uterus, which thinned the anterior cervical lip over it. Panhysterectomy was performed with excellent immediate results, but the disease returned in the vaginal cicatrix with a fatal issue after some months.

The uterus was found to contain a large interstitial growth involving the entire posterior wall, encapsulated throughout, except at the external os. Upon miscroscopic examination it showed fibro-muscular tissue infiltrated by numerous large round cells, actively proliferating, and evidently sarcomatous in nature.

In the majority of cases the sarcomatous growth is of the

small spindle-cell variety, and seems to arise from the connective tissue stroma, although a small round-celled variety arising from the muscle fibres has been described. Writers vary exceedingly as regards the frequency of sarcomatous degeneration. Thus, Von Franqué[1] states it to occur in between 3 and 4 per cent. of all cases, while Cullingworth met with one case of myxosarcoma in 300 examples of fibroid, and Noble only two in 258 cases. Personally I have only observed one undoubted example out of over 400 cases, while on consulting the case-books statistics of Professor Simpson's ward in the Edinburgh Royal Infirmary, no instance occurred in the last 300 cases of fibro-myoma. In taking these statistics *en masse*, in only four cases out of 1250 fibro-myomata has sarcomatous change occurred.

As a rule sarcomatous change occurs after or about the menopause, and is perhaps the most common, but by no means the only cause of increase in size of a fibro-myoma after the climacteric.

From the rapid increase in size of the tumour, severe pain is a very constant symptom. Thus, if after the menopause along with enlargement of a known fibroid there is pain and loss of strength, the diagnosis of sarcomatous change is almost certain.

Cystic and œdematous infiltration and degeneration of fibroids, with slight cellular proliferation resembling myxosarcoma, I have observed on two occasions. In one of these the intervening spaces were filled with blood clot which gave the appearance of the telangiectatic tumour described first by Cruveilhier. In these cases the cellular proliferation though assuming the embryonic type, is so scanty that one can hardly classify them as sarcomata. After removal there has been no sign of recurrence, as was to be expected.

Malignant epithelial infiltration of fibro-myomata is of extreme rarity, only one or two cases having been cited. In these instances

[1] *Encyclop. Geburtshülfe* Sänger and Herff.

the original tumour has probably been an adenomyoma, a tumour either due to changes in Wolffian relics or to infiltration of the muscularis of the uterus by glands from the endometrium.

Coincident Malignant Disease of the Uterine Mucosa with Fibro-myomata.

It is probable that malignant disease of the corpus uteri is more prone to develop in uteri, the seat of fibro-myomata. Out of nine cases of adeno-carcinoma I have operated upon, three were associated with fibroids of sufficient size to be noticed by the patients themselves, while in a fourth case a small fibroid nodule was present in the uterine wall. That this should be is only to be expected from the necessarily increased vascularity of the organ as a whole, and the endometrium in particular. In support of this is the frequency with which mucous polypi of the uterine body complicate fibroids. My own experience shows 11 cases out of 99 hysterectomies.

This association of endometric growths with fibro-myomata is of clinical importance in so far as they frequently give rise to severe hæmorrhage, in cases in which fibroids have been long known to be present, though quiescent. Where marked bleeding occurs with previously quiescent fibroids, the uterine cavity should in all cases be thoroughly explored by the finger and curetted at once so as to determine if any endometric change is present, and if so of what nature.

Malignant disease of the cervix, on the other hand, must be considered a rare complication of fibroids. From personal experience I have only on one occasion met this coincidence when the fibroid was large enough or situated in such a position as to give rise to symptoms; although on three occasions I have noted small unimportant nodules in uteri removed for cervical disease. The statistics of the Edinburgh Hospital which I have consulted agrees with this experience.

The comparative rarity of malignant cervix with fibro-myomata, is partially to be explained by the frequent association of sterility due to the fibroid, and thus the absence of the essential predisposing factor to its development is removed, viz., laceration of the cervix. That sterility is predisposed to by fibroids is denied by some authors, but personal experience leads me to believe it is one of the most striking clinical features connected with these growths.

It is probable, therefore, that fibro-myomata themselves in no way influence the development of cervical cancer, and the association is only to be considered a coincidence.

Malignant Degeneration of the Cervical Stump after Subtotal Hysterectomy.

This is considered by Richelot of sufficiently frequent occurrence to warrant panhysterectomy being performed in all cases. Curiously enough he has in his own experience had three cases out of a total of thirteen recorded. This is, however, contrary to the experience of the majority of other operators who, from the rarity of this complication, the rapidity of the subtotal operation, and the smaller mortality incurred, strongly favour this method. My own experience is thoroughly in accord with these advantages of this method. In 100 cases I have thus operated on, I have seen no malignant degeneration of the stump.

It seems probable that in two of Richelot's cases cancer was present before operation, otherwise it is difficult to account for this extraordinary percentage of malignancy. In this connection Bland Sutton records an interesting case where cancer was present though unsuspected in the cervix, and reappeared in the vaginal cicatrix after panhysterectomy.

From a general review of the literature and from personally

acquired statistics and experience, I can come to no other conclusion than that malignant uterine disease is but slightly predisposed to by fibro-myomata, and may be looked upon merely as a coincidence.

It cannot be claimed under any circumstances that the probability of malignant disease supervening is alone a valid reason for operative interference on fibro-myomata, or, on the other hand, that fibroids confer immunity from malignancy. Fibroids which give rise to no symptoms, either from their size or position should be considered as simple growths with no special tendency to malignancy, and demand no treatment which may risk the life of the individual. When symptoms occur to warrant interference, removal is the only treatment to be recommended, but, until such symptoms arise the woman should as far as possible be kept in ignorance of the presence of the growth. Her life is in no way menaced by its presence.

By keeping the tumour, at least so far as malignancy is concerned, she runs a risk of death in the distant future of infinitesimal proportions (1. 300). While radical operative treatment means an immediate risk of about 2 per cent. mortality, under the best operative conditions.

Under these circumstances it is evident that a "tumour in the uterus is worth two in the operator's museum," so far as the owner is concerned.

The President had listened with much pleasure to Dr Haultain's valuable paper, and he entirely agreed with the conclusions arrived at. Fibro-myomata and carcinomata of the uterus were met with most frequently during the same period of life, and were of such frequent occurrence, that we must expect from time to time to find them co-existing in the same uterus. A fibroid tumour rarely, if ever, undergoes carcinomatous degeneration. Carcinoma springs from the endometrium, and when a fibroid

becomes invaded it is simply through contiguity of tissue. With sarcoma, however, the case is different. Sarcomatous degeneration occurred in fibroid tumours, and Dr Brewis had met with, at least, three examples of it in his own practice. Fifteen years ago he showed the Society a large fibro-cystic tumour of the uterus which he had removed, and which Dr Sims Woodhead, who was then in charge of the College of Physicians' Laboratory, pronounced to have undergone myxo-sarcomatous degeneration. With regard to the question of total *versus* subtotal hysterectomy it was quite possible that cancer might develop in the stump after the latter operation, though he had never seen a case; but when it did occur it was not as a malignant degeneration of a fibro-myoma. The subtotal operation was the easier to perform, and was the one he preferred, but as cancer of the body may exist unsuspected in a uterus, the seat of fibro-myomata, it was his custom to lay open every uterus as soon as it was removed, to see if the endometrium was healthy, and if the latter was found to be at all suspicious he removed the cervix. Even when the endometrium was healthy he cut out the mucous lining of the cervix with a sharp knife, and cauterised the raw surface before covering over the stump with peritoneum.

Professor Simpson had listened with great interest to Dr Haultain's valuable communication, and gave examples which had come under his own observation of the various relations of fibroids to sarcoma and carcinoma described by Dr Haultain. He was unable to say that panhysterectomy had an advantage over the supra-vaginal operation as regards the tendency to degenerative tendencies in the patients afterwards. He had seen in one case where a patient had been subjected to panhysterectomy for a large fibroid uterus, that sarcomatous changes set in within two years, both in the abdominal scar and in the scar in the vaginal roof. It was important to keep in mind in discussions on this subject, that tendencies in one direction or another might be traceable to absence or disease of the ovaries.

Dr James Ritchie said that this very interesting paper demonstrated clearly, how unwise it was to accept what are nothing more than pious opinions, and, on the other hand, the advantage of submitting such questions to statistical investigation in a scientific spirit having regard to all the facts.

Dr Haig Ferguson thought the paper was an opportune one, laying down as it did very clearly the relationship of malignant disease to fibro-myomata. The conclusions were in accord with what most of them believed, but it was an advantage to have them definitely stated, especially as there seemed to be a tendency amongst some at the present time, to make too much of the possible malignant eventualities in such cases. No doubt an ordinary fibroid might occasionally undergo sarcomatous degeneration, and it was interesting to note Dr Haultain's observation that he considered an *encapsulated* sarcoma in the uterus to be a proof of its having originated in a previously existing fibroid. There was, on the other hand, but little doubt that there was no special liability to cancerous degeneration in fibroid uteri, which was indeed what one would have expected. If, therefore, a fibroid and a cancer existed in the same uterus they were usually quite independent of one another, and their presence together was of the nature of a coincidence. Dr Ferguson showed some years ago to the Society a specimen illustrating this. The specimen was a uterus he had removed by vaginal hysterectomy for cancer of the cervix, and where there was also a fibroid at the fundus.

Dr J. W. Ballantyne thought that Dr Haultain had rendered two services to women suffering from fibroids. He had, as the Society records showed, successfully operated upon and relieved many cases; but he had also, in his paper this evening, laid the spectre of the fear of malignant degeneration in such growths At any rate, the spectre, if not laid, was in retreat before the solid array of statistics marshalled in sight of it. His own experience of malignancy in fibroids was not extensive; but he remembered

a patient he had seen some years ago in whom a tumour was removed from the cervix, it was apparently a fibroid; it recurred and was again removed by Professor Simpson, when it was found to be partly fibroid and partly sarcoma; it recurred a third time, and on removal was discovered to show a much greater amount of sarcomatous tissue. He had published a record of the case in the *Transactions* (vol. ix., p. 185, 1884), twenty years ago.

VII. THE OBSTETRIC SATCHEL: A PROBLEM IN ASEPSIS.

By J. W. BALLANTYNE, M.D., F.R.C.P.E., Lecturer on Midwifery, School of Medicine, Edinburgh; Examiner in Midwifery in the University of Edinburgh, etc.

THE speed of a fleet of ships is the rate at which the slowest vessel in that fleet can sail. The measure of the strength of a defence is found in its weakest point. The degree of immunity from septic infection in obstetric practice depends upon the completeness of the aseptic precautions adopted; the precaution which fails determines the quality of the success of the prophylaxis. If the fleet is to sail faster, it is useless to accelerate the swift cruisers and destroyers to thirty knots while the other vessels can only do fifteen or eighteen; if the defending wall is to stand sure, it is the weak part that requires to be strengthened and not the strong; and if obstetric asepsis is to be perfect, it is the defective detail that must be corrected. To condense this wide argument down to a single point, I am hesitating about the adoption of rubber gloves in obstetric practice because I am not sure about the state of my midwifery bag. The meaning of this somewhat cryptic statement will become clear as the discussion advances.

To understand the position of aseptic midwifery at the present time, it is necessary to cast a glance backward; it need

not be a long look, but it is essential. In 1867 a new word began to be seen in the medical literature of the day: that word was *antiseptic*. It was not truly a new word (new things being altogether rare things in this world now so old), but it began to carry to the hearer's mind a new idea and to have new and beneficent associations. It was really an old word, for it was in use as far back as 1751 in the sense of "antiputrescent"; we can read in the *Gentleman's Magazine* of that time that "acids *per se* are most powerful antiseptics." It was employed figuratively, also, as something preventing moral decay; and Thomas Carlyle, in his *Latter-day Pamphlets*, published in 1850, characterised certain individuals as "not divine men, yet useful antiseptic products of their generation," a characterisation which we obstetricians might well strive to earn for ourselves. Be this as it may, in 1867 Lister published his articles on "a new method of treating compound fracture" and "on the antiseptic principle in the practice of surgery" (*Lancet*, i. for 1867, p. 326; ii. for 1867, p. 353), and launched the word afresh on its voyage down the stream of time with a new significance attached to it. I need not relate how Lister had grasped the all important result of Pasteur's research on the microbe causes of putrefaction, "a secret wrung from nature's close reserve," and had translated it into the practical everyday work of the surgeon; the marvel of thirty years ago has become the commonplace of to-day, and requires no re-telling by me. It is well, however, for us to remember that during the decade that followed Lister's discovery, surgeons relied upon the antiseptic rather than upon what we now call the aseptic principle in their management of wounds; the microbes that ventured near the operator perished (or were supposed to perish) in the noisome spray or were killed by strong carbolic lotions in the incision, and the tissues of the wound themselves did not always escape the fate prepared for the invading hordes of bacteria.

In the year 1868 carbolic lotion was being employed in

Glasgow for the washing out of the uterus in puerperal septicæmia, as we learn from Professor J. G. Wilson's short note in the *Glasgow Medical Journal* (i., p. 322, 1869); and about the same time Bischoff paid a visit to Lister and took back with him to Basel the idea of obstetric antisepsis. In 1870 Stadtfeldt of Copenhagen systematised the new plan of conducting midwifery cases, and it is worth while remembering that the Danish obstetrician emphasised personal disinfection, the washing of the hands in carbolic lotion, and the daily bathing of the genitals with the same during the puerperium, as well as the employment of vaginal douches. Although this was so, yet there can be no doubt that during the ten or fifteen years that followed 1870 the outstanding feature of the treatment was the post-partum and puerperal vaginal douche. As we now know this was not so essential a part of obstetric antisepsis as was thought, and was founded upon imperfect knowledge of the bacteriology of the vagina and uterus; more than this, it became in the hands of some a real danger. Nevertheless, much good was done by the new departure in the management of midwifery cases, how much Sir (then Dr) Halliday Croom demonstrated in a paper which he read before this Society in November 1880 (*Trans. Edin. Obst. Soc.*, vi., p. 3, 1881); the mortality in obstetric practice fell rapidly and the morbidity also decreased, sure indications of the success of any method of treatment. Still better things, however, were yet in store for the parturient and puerperal patient.

Asepsis is a newer and a better thing than antisepsis, for prevention is better than cure, and is very much better than a cure that brings dangers with it inherent in it. In a sentence, it is better to prevent the access of pathogenic organisms to the uterus than to pursue them there with strong antiseptics, which seriously reduce the vitality of the uterine tissues themselves and may do harm also in other ways. Chiefly through the painstaking investigations of the Germans a knowledge of the

bacteriology of the genital tract from uterine fundus to vulva was built up during the last two decades of the nineteenth century, and the information thus obtained is being applied to the elaboration of a more perfect system of dealing with the risks of septic infection in labour and the puerperium. Under normal circumstances the uterine interior in pregnancy and labour is sterile: the cervical plug of mucus, while it does not kill bacteria, makes it at any rate difficult for them to pass in; by a germicidal action of the vaginal mucus, and possibly by other protective mechanisms of a more complex kind, microbes introduced into the vagina from without are rendered innocuous; the gush of liquor amnii (practically a normal saline solution) which takes place at the close of the first stage of labour, and which is to some extent repeated at the end of the second, helps to wash away any microbes which the vaginal mucus (perhaps becoming scanty) has failed to kill; and, finally, the placenta, like a huge sterilised sponge, sweeps through the passages, carrying clots, shreds of membrane, meconium, vernix and all such putrescible matters before it. Outside the vaginal orifice, however, a very different state of matters exists: there are congregated multitudes of pathogenic and pyogenic organisms which may be carried in on examining finger, on instrument, and on douche nozzle; near the anus, in particular, there lurks in all probability the bacillus coli communis, more to be feared in its later developments than all the rest, because not vulnerable to the antistreptococcus serum.

As soon as the new conception of the bacteriology of the genital tract in labour began to become the common possession of obstetricians, so soon the methods of management of parturient patients began to undergo revision. The idea of a genital tract sterile in its upper (uterine) part, with self-protecting microbicidal mechanisms in its middle (vaginal) portion, and with a lower (vulvar) part swarming with dangerous micro-organisms—this idea revolutionised obstetric practice. If

mischief had its abode outside the vagina, then it behoved the obstetrician to keep it there or to remove it further off. It was obvious that the examining finger of the attendant, passing in and out over the vulva, might carry in bacteria with it; these might, it was true, be rendered innocuous in the vagina, but there was, of course, a limit to the microbicidal powers of that canal, and there was no certainty that in the uterus any protective mechanism at all existed. The same conclusion applied to instruments or to the douche tube introduced over the vulva. The finger, douche, or forceps blade might all be aseptic when they reached the vulva, and might yet be contaminated by contact with the skin over the perineal body and at the sides of the pudenda.

The attention of the careful obstetrician was now concentrated upon the vulva. Thorough cleansing of the external genitals and surrounding parts from before backwards began to take the place of importance formerly occupied by the vaginal douche; soap and water and an antiseptic lotion (sublimate, carbolic, lysol, creolin) were brought into operation, and special care was taken to remove sources of danger from the neighbourhood of the anus. Further, the obstetrician, when introducing his fingers or any instrument into the vagina, was careful to hold aside the labia so as to avoid contact therewith. The number of vaginal examinations was also reduced to a minimum, and careful abdominal palpation in great measure replaced the vaginal touch. All these precautions are wise, and must, to my mind, be in no way altered; they are essential to the safe practice of obstetrics. Further developments of the aseptic system soon appeared. More and more rigid methods of hand-sterilisation were adopted, culminating in the wearing of rubber gloves, and the care of the finger nails was made almost a science. In maternity hospitals, at any rate, and to some extent in private practice, the boiling of instruments before their introduction into the vagina and uterus became a matter of routine. Operating coats began to be

worn, and in this connection I may say that since about 1894 or 1895, when I commenced wearing an ovariotomy apron at my private cases, I have used this precaution. In all these ways the technique of obstetric asepsis was elaborated and established. Now, having very rapidly and cursorily enumerated the precautions usually taken at a midwifery case at the present time, I may proceed to discuss the question of the midwifery bag.

The midwifery bag is, to my mind, the weak point in the obstetric defence of the woman in labour against the assaults of sepsis. The bag is, indeed, no worse than it was years ago, in some respects it is perhaps a little better; but in its evolution it has not kept pace with the progress of the technique and armamentarium of modern obstetrics. While danger has been largely excluded from many directions, the midwifery bag still brings it to not a few cases of confinement. Edgar says that "the ordinary obstetric leather bag which has been from one case to another, in cabs and street cars, which of necessity has had its interior soiled by bloody fingers and instruments, green soap, ergot, or other drugs, has no place in the lying-in room in the present age of aseptic surgery." The words are strong, but I do not think they overstate the facts. Some years ago the contrast between the aseptic precautions I was adopting for abdominal sections and other gynæcological procedures, and those with which I was contented at an instrumental delivery, began to come home to me with some force; and it was not long before I began to try to bring the two groups of cases more into line. It was comparatively easy to approximate the protective procedures in most of their details; but I still found myself starting off to do, say, an ovariotomy, with all my instruments, swabs, and ligatures, sterilised and in a metal steriliser; while, when the call to a forceps or craniotomy case came, I picked up my midwifery bag and trusted that I should be able to sterilise its contents at the patient's house. I do not think my methods differed much, if at all, from those in use by my medical brethren;

but in obstetrical literature, and more especially in that of Germany, there began soon to be indications that the conscience of the profession was being exercised about the safety of the midwifery bags in common use. As far back as 1890, Professor Simpson showed to this Society a German midwives' obstetric bag, in which there was an attempt to overcome some of the more obvious risks (*Trans. Edin. Obstet. Soc.*, xv. 119, 1890); and in 1892, Veit demonstrated to the Gesellschaft für Geburtshilfe und Gynäkologie in Berlin his obstetric and gynæcological operating bag, containing a metal carrier for instruments which could be sterilised (*Centrlbl. f. Gynäk.*, xvi. 440, 1892). In 1895 Professor von Herff brought out a somewhat complicated instrument-holder of aluminium (*Centrlbl. f. Gynäk.*, xix. 1033, 1895), and Fehling devised a midwifery bag (*Geburtskoffer*) of the same metal about the same time (*Centrlbl. f. Gynäk.*, xix. 1062, 1895). Towards the close of 1895, Albers-Schönberg described his new obstetric bag, shaped like a portmanteau and covered with canvas (*Centrlbl. f. Gynäk.*, xix. 1361, 1895). So recently as October of last year (1903) Dr R. de Seigneux proposed to obtain an aseptic system by placing all the armamentarium in little sterilisable bags inside an ordinary obstetric leather bag (*Centrlbl. f. Gynäk.*, xxvii. 1240, 1903); and in the fine work on *Obstetrics* of Professor Edgar of New York, published a few months ago, a good description is given of a midwifery bag, consisting of a double metal steriliser containing the various instruments in canvas bags. To Edgar's bag I shall return immediately.

Meanwhile my midwifery bag was, so to say, following in the wake of the inventions of Germany and America. At first it was an ordinary leather bag such as is commonly seen in the hands of the medical man; then it was exchanged for one of the same kind, but with a detachable and washable lining—a step in the right direction, I have no doubt, when I remember what was the state of the lining of the former bag after some years' use. With this I suppose I was satisfied till some time

ago, when I began carrying my obstetric instruments about with me in a metal steriliser. This was not a success, as it suggested to the lay mind the idea of a surgical operation, and there is such a thing as obstetric conventionality which calls for respect. So I immediately bought an ordinary midwifery bag to place the steriliser in, but it had to be a big bag to contain it, and it was very heavy and not a complete success. I then relaxed my efforts until the appearance of Professor Edgar's book, with his obstetric bag described in it, stimulated me to a fresh attempt.

At first I thought that Edgar's bag might be suitable for general use in this country, but after obtaining one from New York, I discovered that it had features which I imagined might be modified with advantage. What these features were I shall mention immediately, after I have stated very briefly wherein the bag differs from ordinary ones. The complete description is to be found in Edgar's *Practice of Obstetrics* (p. 502), and I need only refer to its general characters. The bag consists essentially of two trays or vessels, with a leather cover of a portmanteau shape fitting over them both. The trays are of sheet iron enamelled in white. One of them, the female, is shallower than the other, but slightly longer and broader, and in it the deeper but shorter and narrower male tray rests when the bag is ready for transportation. The male tray does not pass entirely within the female, a small space being left in the latter, in which is a canvas tray for the accommodation of the glass ware of the bag. The deep male tray contains the obstetrician's operating coat or apron, his douche, his dressings (iodoform or sterilised gauze, etc.), and his instruments (forceps, scissors, needles, and needle-holder, etc.). Over the two metal trays, fitted together as above, there is passed the leather skeleton of a portmanteau of an extinguisher shape, and the whole is held together by two strong straps. The bag is 18 in. long by 9 in. high and 8 in. wide, and it weighs when empty between 10 and

11 lbs. I may add that the instruments and other things in the deep tray are contained in small canvas bags. The bag, without the canvas tray, cases and contents, can be obtained through instrument-makers on this side of the Atlantic for about £3, 3s.

Now, it seemed to me that the principle upon which Professor Edgar had proceeded was perfectly sound. The bag as a whole was simple; it did not contain the elaborate and complex arrangements sometimes seen for holding the various parts of the armamentarium. It was also sterilisable by boiling in all its parts except the cover; and it consisted of trays in which the various instruments might be sterilised beforehand or at the confinement. Further, it had a sufficient resemblance to the ordinary bag not to offend against the conventional. It appeared to me that if it could be made lighter and cheaper, and if a washable cover could be devised for it, there was the possibility of obtaining a bag which might be useful to the general practitioner and specialist alike, and yet fulfil all the requirements of the strictest aseptic regimen. Accordingly I asked Mr Young[1] to make for me the model which I now exhibit.

In the first place it seemed to me that it was necessary to give a name to the new bag which would denote that it differed essentially from the old one. I therefore propose that the name *Obstetric Satchel* be set aside for any form of metal steriliser contained within a washable or leather cover, while the old name midwifery bag be retained for the ordinary bag closing with a lock or clasp. The word satchel has already been used in several slightly different senses, as any bag or sack or other means of carrying books or papers, and there is no violent dislocation of its significance in employing it in the way I suggest.

In the second place, it was obvious that the satchel, if it were to become anything else than the appanage of the

[1] Of Messrs Arch. Young & Son, Forrest Road, Edinburgh.

obstetric consulting physician, must be procurable at a lower price, and this suggested whether the material of the trays might not be advantageously altered. Cheaper and lighter, were the essentials which were present in my mind. Aluminium occurred to Mr Young and myself; but this metal, although light, has the disadvantage that it requires to be beaten out into the form needed for the trays, as it cannot be soldered together easily, and this would, of course, increase the cost. Copper was thought of, but was abandoned on account of its weight. Finally, it struck me when I happened to look at my ordinary small steriliser (Caird's pattern) which had been in use for several years and was looking none the worse, that tin was after all the material we were in search of. Tin it is, therefore. I may add that my objection to enamelled ware as used by Edgar is not only the price and weight, but the liability to chipping. In the bag which we got from New York the enamel was already badly chipped when it reached this country, and the possibility of keeping it quite aseptic thereby diminished.

In this way the price of the satchel was cut down and its weight lessened. In the next place it seemed to me that the trays were unnecessarily wide, and that they might fit more closely to each other. So instead of having the trays $18 \times 8\frac{1}{2} \times 3\frac{1}{2}$ and $16\frac{1}{2} \times 8 \times 6$, I got them to measure $17\frac{1}{4} \times 7\frac{3}{4} \times 3\frac{1}{2}$ and $17 \times 7\frac{1}{2} \times 6$ inches (Figs. 1 and 2). In this way the weight was further diminished, and the satchel was narrowed slightly approximating its form to that of the ordinary midwifery bag.[1]

A minor modification was the abolition of the cross bar rests in the corners of the female tray, which seemed to prevent the easy cleaning of the tray and to provide awkward sharp edges in manipulation. Instead of them, external brass ribs or flanges, four in number, were fixed (soldered on) to the exterior of the male

[1] For ordinary midwifery practice the height and width of the satchel may be still further reduced; the above measurements are for a consultant's satchel capable of holding *all* the obstetric instruments.

tray; these prevented the male tray descending too far into the female, and so preserved the space in it for the canvas holder

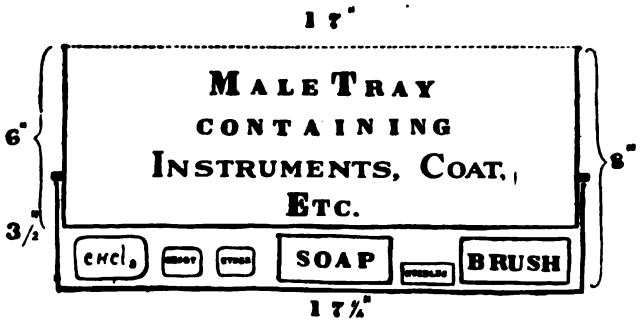

FIG. 1.

for the glass ware. They also provided us with a means of lifting the male tray out of the female, which is a distinct convenience.

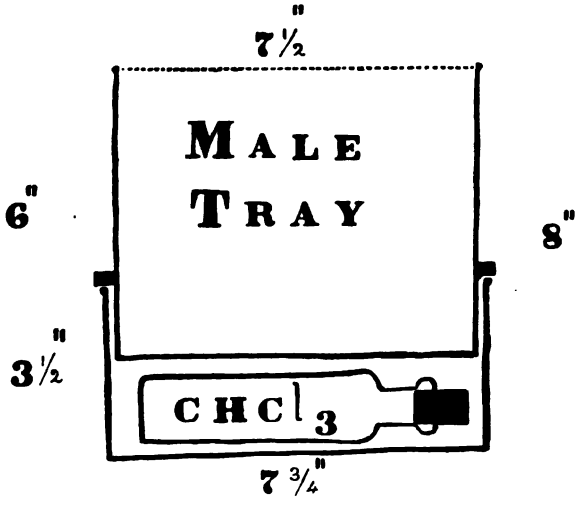

FIG. 2.

The satchel has a cover of washable brown canvas, which I regard as an advantage, for it also can be thoroughly cleansed now

and again by boiling, and is at the same time lighter than leather. Instead of having it fit over the trays like an extinguisher, an arrangement which almost necessitates a second pair of hands to hold it in order to extract the trays from it, it is so constructed that it opens at the side (not below) and easily allows the contents to be withdrawn or replaced. A single leather strap with a handle traverses its upper surface longitudinally, and surrounds it (Fig. 3).

By these modifications the weight of the empty satchel and cover is reduced from 10½ lbs. to 8 lbs., and the cost from £3, 3s.

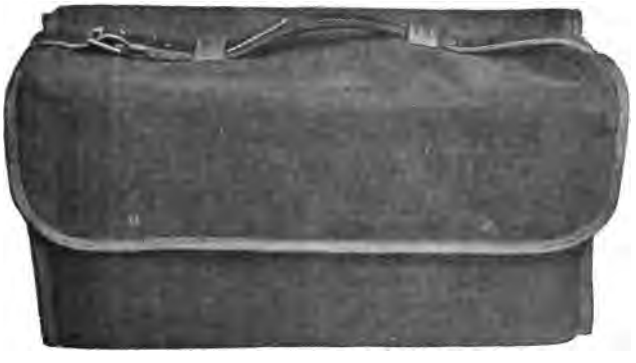

Fig. 3.

to between 35s. and 30s.; the cover also can be easily washed. Further, when it is placed on a hard surface, being surrounded on all sides with canvas, it does not rattle, and so gives no audible indication that it is aught else than a conventional bag. I may add that the glass ware inside, as well as the instruments, being enclosed in canvas sacks and in sterilised towels, make no noise, and are ready for use when needed.

The advantages of such a satchel as I have described are many, but chief among them is its cleanliness. After a case is over, everything can be put into the tins and taken home: the instruments can then be boiled and put ready for the next case; the coat or apron can be washed and boiled and dried by ironing;

so can the towels or canvas bags and cases; the tins also can be thoroughly sterilised. Then, when another confinement comes on, we can go to it with clean things in a clean bag, that at any rate is made certain; but if we are still in doubt as to the condition of any parts of our armamentarium, we have a ready means with us to sterilise any or all of them afresh.

Then, at the confinement, as Edgar well points out, there is much to be gained. The deep tin, for instance, may be used for washing the hands in, and it is large enough to admit the whole forearm, which is useful when such an operation as version is in contemplation. The shallower female tin tray may be used as a steriliser: the forceps pinned up in a towel may be placed in it and sent to the kitchen to be boiled; the water can be poured off and the tray and forceps still in its cover can then be brought back to the bedroom and used if occasion should arise. In an emergency, the two trays, deep and shallow, may be employed as baths with hot and cold water for the resuscitation of an asphyxiated infant. The canvas tray in the inside of the shallow tin has the advantage of keeping all the bottles and glass ware together in a noiseless fashion. As a rule only the forceps need be carried, but if we suspect a serious operative labour, the deep tin is large enough to contain a basilyst, a Braun's cranioclast, and a Bossi's dilator as well. Finally, the satchel has a perfectly conventional appearance and can be carried through the streets without attracting any attention, as I have personally proved.

It may be objected that there are disadvantages connected with its use. So there undoubtedly are. It is rather large in size; its contents are not so easily got at as when they are in a bag which opens in a second of time with a catch arrangement (which, I may add, sometimes does not catch, with unhappy results); the tins may rust or leak (an ordinary bag may also get a hole in it); and the price is a little above that of the small leather midwifery bag. But what do all these amount to? Simply

this; we are taking more pains in order to get a better result. The best results are built up upon attention to details; detail, in the long run, here as elsewhere, overcoming dash. Doubtless it is easier for the surgeon to do an operation with a scalpel taken out of his waistcoat pocket; but the surgeon does not on that account neglect to boil his instruments nor to study with painstaking exactitude all the minutiæ of aseptic technique. The surgeon has accepted the principle of asepsis in surgery and he tries to carry it through in detail; in obstetrics we obstetricians have also accepted the aseptic plan and we must likewise be thorough in the carrying of it out. At present the midwifery bag is the weak point; I hold it to be our duty to strengthen this point. After it has been dealt with, I am ready and willing to consider whether I ought to wear rubber gloves.

It may be objected that midwifery is not surgery, and that a confinement differs from an abdominal section. There is some force in this objection; at the same time the obstetrician has often to be the *cheirurgeon*, if we will keep in mind the etymology of that word; and, further, although a labour may not resemble an ovariotomy or a hysterectomy, yet it has much in common with any operation performed within a mucous cavity, such, for instance, as the removal of adenoids, and everyone knows that such internal operative work requires asepsis as well as that in which the incision is a skin one. There is, perhaps, another objection that may be urged: someone may say, "I have been carrying an ordinary midwifery bag for twenty years and have never lost a mother in labour in my private practice, and why should I change now to a more complicated method?" My reply is, that this is not a question of mortality but of morbidity. I do not hold that absence of mortality is cause for boasting, but rather for deep thankfulness; further, can it be said that there has been no morbidity, no slight attacks of cellulitis, no subinvolution, no salpingitis, no threatenings of

phlegmasia alba dolens? Is it not possible that with a more rigid system of sterilising our instruments, our hands, *and our midwifery bag*, we might reduce that troublesome morbidity also to a vanishing point? *Credo.*

Dr Dewar thanked Dr Ballantyne for his very instructive and interesting paper. While he was able to agree with Dr Ballantyne's views in one sense, he was quite unable to be at one with him in another. He agreed with him in his endeavour to improve the procedure of midwifery practice, but he did not see how it could be of much practical use. The bag is but one link of the chain of a whole series of causes of sepsis, and though that link may be made and kept sterilised, yet it will not be of much use in helping us to attain that ideal of midwifery practice which we are all striving to obtain, 0 per cent. morbidity and mortality, so long as the remaining links—the person of the patient, the attendant, the neighbours who visit the patient, and the general surroundings in an ordinary home cannot also be sterilised. Can ordinary everyday obstetric practice be rendered aseptic? He thought that under existing circumstances it could not, and it occurred to him to be drawing the matter to a very fine point to say that the general practitioner, to be up to date, must carry about with him a sterilised bag or satchel, when that bag may be, and in all probability will be, contaminated within five minutes after it is opened in nine-tenths of the houses to which it is carried. He believed that the very least possible danger existed in a well-kept bag, where everything was kept clean, and the instruments, bottles, etc., wrapped in clean linen towels, which could be frequently washed. He was afraid that Dr Ballantyne must be referring to high-class practice with big fees, in well-appointed houses, and with highly trained nurses, and not to the ordinary everyday practice in ordinary working-men's houses, where the best has to be made of the circumstances at the time. He did not approve of indiscriminate vaginal douching, and

certainly thought there should be no douching after the first stage of labour had set in, as it carried away the natural secretion, which were emollient, lubricating, and protective to the mucous membrane of the tract over which the child had to pass. As to vulvar cleansing it could not be of much use, unless the parts were shaved, and the ordinary woman was not educated up to that point yet. He thought there should be fewer vaginal examinations. That practice was very much abused, and probably it was due to the desire to please the patient, that something was being done to help her, and probably to expedite the labour at the expense of complications. He could not speak too strongly of the harm frequently done by ignorant women, posing before the patient as would-be clever nurses, making vaginal examinations. That was a danger far exceeding the fanciful source of danger in the innocent bag. He quite appreciated the fact that Dr Ballantyne was moving in the right direction, and he would be among the first to adopt the idea, when means were devised to sterilise the source of the greater dangers to which he had already alluded. Till then he would be contented to stick to the bag which had served him so faithfully in the past.

Dr James Ritchie said that the Society was indebted to Dr Ballantyne for reminding them of a real source of danger and for his endeavour practically to minimise it. The fittings seemed larger than was necessary for the implements of the general practitioner. One objection to a tinned steriliser was the invariable tendency to rust at the cut edges, and so to damage the instruments. Some improved kind of steriliser was still a desideratum.

Mr George Chiene said that as a comparative "outsider" he must apologise for speaking, but the subject Dr Ballantyne had brought before them to-night was one of interest to the surgeon as well as to the obstetrician. Early in his paper he told them that some years ago he mentally compared his preparations for an abdominal section with those for a midwifery case, to the

marked detriment of the latter, and yet he allowed that the dangers of sepsis in the two cases were somewhat similar. He should like to ask Dr Ballantyne if he would use the "satchel" he had shown them to-night when preparing for an abdominal section. It appeared to him that a surgeon, or for that matter an obstetrician, in his preparations for an operation or a "case" must do one of two things. He either sterilised, by steam at high pressure, by boiling or by other means, his instruments, dressings, coats, nail brush, etc., before going to the operation, and kept them sealed as far as possible from the external air until he was ready to commence his work; or he took his instruments, etc., with him wherever he was going, in the most convenient way, and having arrived at his destination he then sterilised by boiling or other means. He thought there was a certain amount of false security in both the American bag and the "satchel" shown to-night, as in using them the contents were more or less exposed during transit, whereas the old midwifery bag gave no false security, and, therefore, after using it, careful sterilisation of the contents was carried out on the arrival of the obstetrician at his destination.

Dr J. W. Ballantyne, in his reply, said that he must first of all dissociate himself from the idea that his satchel was a perfect and final solution of the problem of asepsis in midwifery; it was a step towards it, however. The satchel might, of course, be much diminished in size for everyday, non-operative, obstetric work. It was true that risks of sepsis came to the patient from other sources, drains, visitors, nurse, etc., but that did not affect the obstetrician's conscience and responsibility so immediately as the risks he himself brought. He, at least, and his armamentarium must be, like Cæsar's wife, above suspicion. He thought every careful obstetrician in the future would require to carry either a steriliser in a bag, or a bag that was also a steriliser (such as the satchel) to his midwifery cases.

MEETING VII.—JUNE 4, 1904.

DR N. T. BREWIS, *President, in the Chair.*

I. The following gentleman was elected an Ordinary Fellow of the Society:—J. D. Hellier, M.D., M.R.C.S., North Grange Road, Headingley, Leeds.

II. *The President* showed various specimens.

III. *Professor Kynoch* showed (*a*) MICROSCOPIC SECTION from case of epithelioma of the clitoris showing abundant "cell nests." The patient was 62, and complained of intense itching at the vulva of six months' duration. Menstruation had always been regular; menopause at 46. Seven children. Family history good. Seven years before coming under observation, was treated for rodent ulcer on the right side of the nose. This recurred and was again operated on five years later. About two months after the commencement of the discomfort from itching a small nodule was detected in the region of the clitoris. On examination the clitoris showed three indurated processes, with ulcerated surfaces, the largest about the size of a pea. There was great pain on touching the affected area. There was no glandular induration discovered. The affected area was removed by a circular incision extending fully half an inch outside the clitoris.

(*b*) TWO VESICAL CALCULI, removed by vaginal cystotomy, the nucleus being formed by hair from a perforating dermoid of the ovary. The patient was 42, and complained of painful and frequent micturition of about a year's duration. Has had four children. On examination there was felt a hard fixed swelling through the anterior vaginal wall, and on passing a sound into the bladder it was found to be blocked by a calcareous mass. The urine was very ammonical, and contained pus. By vaginal cystotomy two calculi were removed (1115 and 1065 grains).

From the bladder a considerable amount of hair was removed, which was found communicating with a tumour in the left side of the pelvis. Hair had formed the nucleus of the calculi. On account of the septic condition, abdominal section was deferred, the bladder in the meantime being irrigated twice daily. A month later abdominal section was performed, the patient's general condition being still very unsatisfactory. A dermoid tumour of the left ovary intimately adherent to surrounding parts, and perforating the bladder wall, was removed. The patient died a week later with symptoms pointing to ascending kidney infection.

IV. *Dr J. W. Ballantyne* showed A SMALL-SIZED OBSTETRIC SATCHEL. It was constructed on similar lines to the one he had exhibited at the previous meeting of the Society, but the upper tray was not so deep. It was large enough, however, to contain the forceps, the operator's coat, and the smaller articles which found a place in the lower tray. It was suitable for the use of a general practitioner, while the larger size was more especially adapted to the wants of the obstetric specialist.

V. CÆSAREAN SECTION IN ECLAMPSIA.

By Sir HALLIDAY CROOM, M.D., F.R.C.S., F.R.C.P.E., Consulting Gynæcologist to the Royal Infirmary, Edinburgh; Consulting Physician to the Simpson Memorial and Royal Maternity Hospital, etc.

IN many of the addresses delivered at the beginning of the present century, recording the progress of obstetrics, during the last, the remark was so common as to be trite that the advance of obstetrics had been so pronounced, that we could now deal with any complication that might occur, with almost assured safety

and success, with the one solitary exception of eclampsia, which still unfortunately occupied an uncertain position, both pathologically and clinically. I therefore offer no apology for bringing this subject up before the Society this evening, more especially as it has already been incidentally referred to in most interesting papers by Morison and Munro Kerr last session; and further the subject of Cæsarean section for eclampsia is one that has come before the profession, at all events in Germany, to a very considerable extent, within recent years.

So far as I know, Van den Akker, in 1875, was the first to carry out Cæsarean section in eclampsia, combined with contraction of the pelvis in the first degree, with a distinctly happy issue, and I think it is mainly Dutch obstetricians that have held the lead in this respect.

In whatever way we view eclampsia, whether from a pathological or clinical side, it is a subject of perennial interest, and though the methods of treatment, both medical and surgical, have been endless, yet I venture to think that the one which I refer to this evening, has had perhaps least attention, except until quite recently, and in recording to you two cases of my own, I have no desire to dogmatise, but simply to record them as cases in which no alternative, other than that I adopted, was possible.

The two cases, which I venture to record, are as follows:—

The record of the first case is this:—

Mrs B. was admitted to the hospital on 21st October. She was 20 years of age. At no time during the latter months of her gestation was there any indication of any tendency to eclampsia. On the day previous to admission she suffered from slight headache, but there was no appearance of œdema. She was attended by a midwife. At 5 o'clock on the morning of the 21st she commenced to vomit, and this continued for some time

during the day. On the same day she began to have convulsive seizures and medical aid was sought, the advice given being that the patient should be removed to hospital at once. There had been frequent recurrence of the convulsions previous to admission, and when first seen her face was cyanosed, but there was no apparent œdema either of eyelids, hands, or lower limbs; furthermore, she was perfectly insensible to touch, light, or sound, and remained comatose throughout. The abdominal tumour did not appear to be more than usually tense or prominent and seemed to contain a fœtus of about 8½ or 9 months size.

Croton oil, pilocarpin, and the hot-air bath were administered and copious perspiration was induced.

To lessen the severity of the convulsions she was put under the influence of chloroform, which, however, did not entirely prevent them. At 10 P.M., the temperature was 101° and the pulse 130. Two ounces of urine, muddy and highly coloured, were drawn off by the catheter, and on examination indicated the presence of a very large amount of albumen, the precipitate being as much as two-thirds the bulk of the urine.

The vagina was very narrow and its capacity extremely small. The fœtal head was high in the pelvis for a primipara, the os uteri was small, only admitting the tip of one finger with difficulty, the cervix was thick, tense, having little of the soft character of a parous cervix, and was hypertrophic, and found to be absolutely undilatable either by fingers or instruments. Barnes' bags were quite useless, and Hegar's dilators had no effect, and Bossi's instrument was not at the time known in this country.

The convulsions continued to recur at intervals of less than five minutes.

A further most persevering attempt was made to dilate the cervix, but proved absolutely futile.

The condition of the patient being critical, it was clear that immediate delivery offered the only chance of life to both mother and fœtus, and after deliberation concerning the four following points:—

1. her comatose condition and the rapid succession of convulsions;

2. the hypertrophy of the cervix;

3. the impossibility of dilating it; along with

4. the contracted condition of the vagina as well as of the pelvis generally, I decided on performing Porro-Cæsarean section, as this offered the only hope for the woman, and the best chance to the child, as the sequel showed.

The patient was fully anæsthetised, and every antiseptic precaution was duly observed. The operation was performed in the ordinary way, and the only point of interest with regard to it was that the placenta was lying on the anterior wall of the uterus, and my incision went right through it. There was very copious hæmorrhage, but this was rather an advantage than otherwise, for the patient was very plethoric. During the course of the operation there was no recurrence of the convulsions, the cyanosis was less marked, and the patient's condition generally improved.

Six hours after operation death of the patient ensued, following a severe eclamptic seizure.

No post-mortem examination was permitted, but the abdominal wound was opened and the kidneys were extracted. These showed a condition of extreme cloudy swelling and early catarrhal nephritis.

The second case was as follows:—

Mrs ——, a primipara of 46 years of age, shortly before labour set in, which occurred at full term, had an eclamptic seizure, and sent for her medical attendant, Dr M'Phee of Auchterarder, who sought the further advice of Dr Haldane

of Bridge of Allan. When labour began, the eclamptic fits became worse, and the intervals between them shorter, and the coma very profound. When I saw her, she had been unconscious for ten hours. On examination, I could only just make out the os uteri with difficulty. The cervix was enormously thickened and hypertrophied, and projected but slightly into the vagina. The fœtus was far above the brim, and the pelvis itself was generally and uniformly contracted in the first degree. The opening would scarcely admit anything larger than a sound. On auscultation, I found the child living. The patient had a rapid pulse, 140, and a temperature of 102°, and was absolutely unconscious. With her medical attendants I discussed the operation of dilatation and abandoned it, because I had no hope of dilating the cervix within any reasonable length of time, and with a patient so far advanced, it was evidently one's duty to save a living child. In the special circumstance, the saving of the child was important for succession reasons. There was, to my mind, nothing left for it but the question of either Dührssen's incisions, or Cæsarean section. With the invaluable assistance of my friend, Dr Lamond Lackie, I performed the operation in the afternoon, after the patient had been unconscious for ten hours. I extracted a living child, which survived and is still living.

I need not detain you with a description of the operation, because that is common property; it was the ordinary operation. The patient was put back to bed, and at 10 o'clock at night, she had regained consciousness, and remained quite clear and conscious for two days. Unfortunately, she died on the third day from a low form of pneumonia, whether septic in its origin or not, I cannot say.

Having thus recorded these two cases, I have now to answer the question whether in both of them Cæsarean section was justifiable.

First of all, the high pulse and continued deep coma, the

severity and frequent repetition of the attacks, rendered the mother's condition one of extreme peril.

Secondly, the intense rigidity and hypertrophy of the cervix in one case, and its absolute closure in the other, rendered any operation *per vias naturales*, except possibly by Dührssen's method, for saving the child an impossibility, and as the preservation of the life of the child in the second case, was of great importance, and as the mother was practically hopeless, Cæsarean section offered the only possible chance. In addition to these facts it must be kept in mind that in the second case, the woman was a primipara of 46, and had been ten hours in labour, and that the pelvis was slightly undersized, and therefore, it was so far satisfactory that all I undertook to do, namely, the delivery of a living child, the mother being in my opinion beyond hope, was attained.

Let me next draw your attention to the present history of Cæsarean section for eclampsia.

In May 1897, Kettlitz gave a survey of the history of Cæsarean section up to and including the year of 1896, and he found in all 28 cases. Again Streckeisen, in 1903, made a further calculation of cases, and he added 26 cases more.

Let us look for a moment at how the mortality stands. Streckeisen found, in the 26 cases which he had collected, a mortality of 32 per cent. in the mothers. Kettlitz found by calculation a mortality of 50 per cent. for the mothers. If we compare this mortality with that in eclampsia generally, eclampsia involving Cæsarean section, if I may so style it, shows a considerably higher percentage. The mortality in eclampsia, apart from Cæsarean section, varies from 25 per cent. down to Winckel's very low estimate of 8 per cent., and Veit's still lower of 3 per cent., but, again I must repeat that of course it must always be kept clearly and distinctly in mind, in this connection, that only the very severest cases are operated on by Cæsarean section.

Now, how does the matter stand, in the cases we are dealing with, with regard to the mortality of the children?

The mortality of children, from eclampsia generally, apart altogether from operation, is something between 44 and 54 per cent. Olshausen, I think, gives the lowest calculation, and he brings it down to about 25 per cent. Streckeisen, in his 28 cases, gives a mortality of 30 per cent., whereas Kettlitz, in his cases, finds a mortality of 62 per cent.

It will thus be observed that as yet Cæsarean section does not offer any improvement in the mortality of children born of eclamptic mothers, but then, of course, it must be obviously understood that all those cases, for which Cæsarean section was undertaken, were in the very last possible stages, and that the operation was a last resort in every case.

It is obviously clear that in any appreciation of the methods of treatment, whether by drugs or by obstetrical interference in eclampsia, some reference must doubtless be made to the pathology, though that, as everyone knows, is shrouded in deep uncertainty. There are one or two conditions which undoubtedly predispose to the production of eclampsia, and these are:—(1) acute and chronic disease of the kidney; (2) a neurotic temperament; (3) old and young primiparæ; and (4) multiple pregnancy.

May I briefly be allowed to mention a few of the theories, which have been advanced for the purpose of throwing light on the obscurity of eclampsia, and I shall do nothing more than mention those which have become matter of common knowledge.

First, there is the auto-intoxication theory, in which there is a more active formation of toxic substances during pregnancy than in a normal condition, and that the elimination of toxin is rendered difficult by the abnormal condition of the blood-vessels and tissues generally, induced by pregnancy, particularly in the liver and kidneys, and these poisons themselves, during their passage through the kidneys, may cause an anatomical lesion in them

which gives rise in its turn to derangement of the functions, and thus completes the vicious circle.

Von Frerich was the first to hit upon the idea of identifying uræmia and eclampsia.

The Traubé-Rosenstein theory of anæmia and œdema of the brain had but a small foundation from the very commencement, and the pressure theory on the ureters or the veins of the kidney by the gravid uterus cannot be made a solid basis for an eclamptic theory.

Let me refer for a moment to Stumpf's theory. Stumpf considers that "under abnormal processes of decomposition, a substance free from nitrogen, toxic in its action, perhaps acetone, or a body resembling it which reacts to the same tests, may be formed. That this body produces by its excretion an irritation of the kidneys, which may eventually lead to nephritis, has a destructive effect upon the colouring matter of the blood, greatly alters the activity of the liver cells, causes sugar to appear in the urine, and produces the destruction of the parenchyma of the liver, leading to acute yellow atrophy of the organ with the formation of tyrosin and leucin, and induces coma and convulsions from an irritation of the brain."

Of course at the present day, the hypothesis that the origin of eclampsia is due to microbes is unavoidable.

It is impossible to overlook the fact that the theory of the hepatogenous origin of eclampsia was strongly defended by French investigators, to which Pinard and his disciples have already given the distinctive name of hepato-toxæmia. In this view the liver is regarded as having in eclampsia lost its power of destroying the toxin formed; hence, an accumulation of toxin in the system which finally results in severe poisoning of the nervous system.

According to the latest reports, hepatic changes were almost constantly found, at least in 70 per cent. of cases of eclampsia; and it may be at once said that it is impossible to say, with

our present knowledge, whether the changes in the liver are the cause or the result; and furthermore, it has not been proved that the changes are constant, nor is there any uniformity in them.

In addition to this, the kidneys of eclamptic women have been found to be diseased to a greater or less extent in most cases. In about 98 per cent. of the cases, albumen was present; and Fehling, who perhaps is the greatest authority on the subject, says that out of 100 cases, he only missed albumen once. Still again, the fact remains that the kidney changes in the most severe cases of eclampsia are often found to be in proportion less than one would be led to suppose by the severity of the clinical symptoms.

Without encroaching too much on your time, let me refer to one or two other theories, namely, the theory of Dienst, who suggests that the blood of the mother and of the fœtus is abnormally rich in fibrin in eclampsia; the poison giving rise to the actual eclampsia in his view being of fœtal origin; and the theory of Arthur Helm, propounded the other day at the Gynæcological Society of London. His idea is that, if we look at the clinical aspect of a case, we see at once that this suggests intracranial pressure. The premonitory signs of headache, dizziness, irritability, blindness, clonic, tonic and tetanic spasms, stupor and coma, are all consistent with the increase of intracranial pressure. Whether this be the case or not, the continuance of the convulsions will increase the pressure by causing congestion of the cerebral vessels, and if continued, serious effusion, and even hæmorrhage may occur, and he suggests, as a means of dealing with them, tapping the spinal cord in the lumbar region, but on this, I do not venture to express any opinion.

As an issue out of the bewildering conflict of theories and hypotheses as to the pathogenesis of eclampsia, a hope has been entertained that experiments on animals might offer some

help. It has been shown that the urine of both nephritic and eclamptic women is much more toxic than normal urine. On the other hand, such investigators as Schmorl, Bouschard, and, quite recently, Wolhard, have shown that the serum of eclamptic women is not more toxic than normal serum, whereas, again, Schumacher's experiments for the purpose of testing the toxic nature of the urine and serum of eclamptics produced absolutely negative results.

What the explanation of the interesting fact of the prevalence of eclampsia in the autumn and spring months is, I cannot venture to say, but that that is a fact is beyond dispute.

But whatever theory we adopt, it is obvious that with the increased arterial and nervous tension, the uterine contractions, if not a predisposing, must be a very strong exciting cause of convulsions; for there can be no doubt that very much slighter stimuli are needed during pregnancy than at other times to give rise to convulsions, and in gravid women there is a particular feature in the constitution of the brain which makes stimuli so much more dangerous. Therefore, any treatment which will anticipate labour, avoid labour, or shorten labour would seem theoretically to be the best in the long run both for the woman and the child, but alas! facts do not bear this out.

There are evidently two schools in the treatment of eclampsia:—Those who treat eclampsia by drugs, an expectant treatment; and those who favour immediate and rapid delivery.

In view of what I have said, it is somewhat remarkable to find that the pronouncement of the International Congress in Geneva, in 1896, was, that "wherever it is possible, it is advisable to wait until labour sets in spontaneously, and to complete delivery, as far as possible, without any artificial help. If pains are observed, but delivery does not, nevertheless, take place, owing to the uterine contractions being too feeble, or occurring at too great intervals, forceps must be resorted to or version; if

the fœtus is not alive, cranioclasm. In order to avoid operative means, one should wait until the soft parts are so far prepared by complete dilatation, or at least dilatability of the cervix, so as to allow intervention with impunity. Artificial delivery should be reserved for exceptional cases. Cæsarean section, as well as forceps delivery, should not be regarded as ordinary operations, and are only justified when every kind of treatment has entirely failed."

So long as the pathology of eclampsia is not cleared up, so long as there is no common ground upon which to build our theories, it is obviously impossible to recommend any uniform treatment of eclampsia. Every different class, every different form of treatment seen, has met with satisfactory results. So far as yet known, no one method has had better results than another.

Of course it is almost impossible to arrive at any definite conclusion with regard to the benefit of one form of treatment or another, because, as I have just said, success accompanies every form of treatment, no matter how severe the case may have been, and it must always be a difficult matter, if not an impossibility, to gauge how far the interference, whether medical or obstetrical, has procured a favourable or unfavourable result, as the case may be. It can afford no reasonable basis for treatment at all. We know that it is due to some toxic material in the blood, but what the toxin is, is unknown, nor do we know how the toxin, whatever it may be, produces the eclamptic state.

There can be no doubt that the goal to be aimed at, is the elimination of the poison, but I do not wish here to enter into the various means by which this may be accomplished, whether it be by the use of pilocarpin, saline injections, thyroid extract, or the many other suggestions that have been made, or by controlling convulsions by means of chloroform, chloral, morphia, etc. The treatment by morphia is not necessarily by morphia alone, not even mainly. Nicholson points out that morphia

temporarily inhibits metabolism, whereas the accompanying treatment by means of the vapour bath and so forth, as well as by purgatives, helps to eliminate the poison. In an excellent paper by Cairns Lloyd, late Master of the Rotunda Hospital, he points out that by the use of this morphia treatment, Veit recorded 60 cases with a mortality of 3 per cent., Charpentier 114 cases with 3·5 per cent., Strongenhoff had 58 cases without a death, whereas during Dr Cairns Lloyd's experience in the Rotunda Hospital, he had 25 cases with only two deaths. The injection or infusion of salines was strongly recommended in this Society by Dr Jardine. It dilutes the poison, stimulates the patient, and causes an excessive flow of urine from the kidneys. As it has been very well said by Helm, "The difficulty of the position is obvious, when we refer to the fact that while one school recommends morphia to control the fits and inhibit metabolism, another would exhibit thyroid extract because it enhances tissue change."

The main point is, in rapid delivery, of which Cæsarean section is the best example, do the eclamptic fits cease? In the second of my own cases, they did, and the woman recovered consciousness. Out of the 28 recorded by Streckeisen:—In 14, the eclamptic fits absolutely stopped; in 3 they were diminished; in 2 they remained unchanged; in 6 he could find no particulars; and in 2 the Cæsarean section was post-mortem. Therefore one may see here that in practically half the cases, carefully recorded, the fits ceased. Furthermore, it has been shown by Duhrssen and others that eclampsia ceases more frequently after artificial than after spontaneous evacuation of the uterus, and the mortality in both cases does not differ to any material extent.

It has long been a matter of common knowledge that the cessation of eclampsia in the great majority of cases, takes place simultaneously with the completion of parturition. Out of 118 cases recorded, the eclampsia ceased immediately or very rapidly

on the evacuation of the uterus in 105 cases, or in 89 per cent. The supreme principle therefore is to deliver the woman as soon and as carefully as possible. If this be so, and it further be admitted that with advancing labour pains, eclampsia is exaggerated, and furthermore, that in most of these cases, the urinary functions are very much interfered with, and in many cases, the child's life threatened at the same time; I say, if such be the case, then the question comes to be, if rapid delivery be desirable, which of the methods is the most easy of adoption.

There are four methods of rapid delivery. First, Dührssen's cervical incisions; secondly, dilatation by the dilators of Bossi and Frommer; thirdly, vaginal Cæsarean section; and lastly, Cæsarean section proper.

With regard to Dührssen. Dührssen's deep and cervical incisions, if necessary in conjunction with an incision into the perinæum or vaginal portion of the perineal body, which the author requires should be carried out only by the hands of a practised accoucheur, awakened great interest in the beginning of the nineties, although there were not wanting authors from whom Dührssen encountered opposition. Dührssen maintains that by means of his method, the safe delivery of a live child is possible in 80 per cent. of the cases of eclampsia. Only in 10 per cent., he claimed (in multiparæ or primiparæ with unchanged cervix), was it necessary, previous to delivery, to resort to dilatation of the os uteri by mechanical aid. This, with the necessary practice, and with stringent asepsis, was said not to involve any greater danger to the mother than spontaneous expulsion.

I believe that but few obstetricians fully and entirely adhere to Dührssen's views. The chief danger of Dührssen's methods seems to me to consist in infection and hæmorrhage. Even though the former may to a certain extent be avoided by the careful employment of antiseptic and aseptic precautions, the

same cannot be said of the hæmorrhage, in spite of Dührssen's assertion to the contrary, and when we consider that most of these cases occur in primiparæ, either very young or very old, and that delivery must constantly be carried out, either by forceps or version, this dilatation of the lower section of the uterus cannot be held lightly.

Secondly, with regard to dilatation by the dilators of Bossi and Frommer, this method does not necessarily mean a rapid delivery. Of course one cannot fail to recognise the excellent cases recorded by Professor Simpson, Leopold, Jardine, Ballantyne, Frost, and others, of rapid delivery by Bossi's instrument, and not for a moment do I mean to say that it is not an excellent instrument for the purpose, and I should think in the majority of cases it is the instrument to use, but it must be borne in mind that dilatation takes from twenty to thirty minutes with a Bossi dilator, and the subsequent delivery of the child by means of forceps or some other method. Further, there are forms of cervical rigidity, which defy the strongest of dilators, and in which laceration, a condition to be very much avoided, is inevitable. At the same time, unquestionably, these dilators in ordinary cases, entirely achieve the purpose for which they were intended.

But in such cases as I have referred to this evening, no such dilatation could have been effected unless accompanied by either incisions or laceration. I am quite aware that this form of extreme rigidity is rare at full term, but still, it is quite common enough to be recognised as a pathological condition.

With regard to vaginal Cæsarean section, which was the subject of an admirable paper, read to the Society by Munro Kerr, to whom we are indebted for introducing the subject, as yet our experience of it is very limited, and though Munro Kerr does not admit it in his paper, at the same time it is obvious that the objections that are open to Dührssen's incisions

are equally open to vaginal Cæsarean section, though probably not to the same extent.

Furthermore, it must be kept in mind that vaginal Cæsarean section is by no means a simple operation, and apart from separating the bladder from the anterior uterine wall, the peritoneum from the posterior, and splitting the cervix anteriorly and, if necessary, posteriorly, right into the uterine cavity, and probably making extensive vaginal incisions as well, and the fact that these incisions have to be repaired afterwards—this after-repair being perhaps the most difficult part of the whole operation, requiring much care and exact assistance—makes it both a difficult and a complicated operation.

Therefore, I come to the conclusion that in cases such as those two I have described, and of which there are many other such cases on record, the simplest and easiest way to deal with them is by abdominal Cæsarean section. First of all, because Cæsarean section, as now performed, is practically free of all danger. The wound in the abdominal wall and the uterine wall is practically clear of infection, and if proper drainage be established, there can be very little risk of septicæmia at all. The only possible objection to Cæsarean section is the presence of the abdominal wound, which might sooner or later lead to ventral hernia.

It would be very very far from my wish to let it be supposed that I advocate Cæsarean section for eclampsia generally; far from it; but I do mean to say that in quite a number of cases, of which the two that I have just recorded are an excellent illustration, there is a distinct field for rapid and safe delivery in cases of eclampsia by Cæsarean section; and where the woman is *in extremis* it certainly gives the best chance of a living child. Of course, I need not for a moment refer to the absolute necessity of it in eclampsia, complicated by a deformed pelvis, where the child is alive, and through which a living child could not be extracted.

To justify Cæsarean section in eclampsia, the point, first and foremost, must be a living child. This indication for the operation is furnished by the great danger of the mother's condition. If the life of the mother, whilst the child is known to be alive, is in the utmost peril, if the derangement of the circulation and the respiration grows ever more threatening, and the impossibility of the delivery of a child, known to be alive, through the natural passages is to be presumed, then Cæsarean section is a justifiable step.

If the case from the very first takes such a form that the life of the mother, the child being still alive, is threatened to the utmost, the cervical canal closed in its entire length, and labour absent or very slight, or when in addition there is even a considerable disproportion between the child and the pelvis, under such circumstances, no symptomatic or expectant treatment would save the child, whilst we should not have the least guarantee of the preservation of the mother, and finally, in most cases, we should regret the loss of both. Under such circumstances, Cæsarean section, among all forms of operative interference to be considered under the circumstances assumed, would certainly always offer most prospect of the preservation of both mother and child.

VI. NOTE ON TUBAL ABORTION.

By Dr D. Berry Hart.

Our knowledge of tubal abortion and tubal mole, so intimately related to one another, came into Gynæcology after Tait's great work on early primary rupture of tubal gestation and its treatment by abdominal section. Statistically we know that these two disturbances—mole and abortion—are more frequent than primary rupture, and practically many of us hold that hæmatocele is most frequently caused by one or other of these phases of an

extra-uterine gestation. To Tait, Werth, Sutton, Taylor, Cullingworth, and many others, we are indebted for our knowledge of these. Imlach, as early as 1886, described cases with blood-clot in the ostium which he did not consider as related to tubal gestation, but which were probably tubal abortions. Imlach's paper is a very interesting one, and was much in advance of its time, as to clinical facts at any rate.

In fifteen cases of extra-uterine gestation where I have operated, one was primary tubal rupture through the peritoneal coat at the second month, what we might style Tait's rupture, the first operated on in Scotland, I believe; two were tubal abortions; one a tubal mole; five were hæmatosalpinx; two, broad ligament gestations, with four months fœtuses; in three extra-peritoneal cases there was only blood-clot in abundance so far as could be made out. In two of these the effusion was in the ligament, and in one in the lower abdomen between navel and brim. One case had gone to full time and been retained five years. Of the fifteen cases two died; one of them had secondary rupture of the broad ligament, and was operated on too late; the other was a tubal abortion who had neglected herself outside.

My first case of tubal abortion had passed two periods and there had been discharge and pain. I saw her during the paroxysms and noted the pain coming and going like a labour pain. There was effusion in the pouch of Douglas, and a rounded mass at the left side. This latter, when I opened the abdomen, was a blood-clot the size of a billiard ball—the solitary hæmatocele of Sänger and Taylor. Apparently it had formed in the tube and been expelled, causing the paroxysmal pains.

The second tubal abortion is as follows:—

E. L., æt. 27 years, general servant, was admitted to Ward 36 on 23rd April 1901, complaining of bloodlessness, coming on since the 2nd of April 1901. She had not menstruated since the second week of January 1901, and on Tuesday the 2nd of

April, about two and a half months afterwards, was suddenly seized with a sharp, stabbing pain in the upper part of the abdomen and radiating down to the right iliac fossa. The pain was so acute that she had to lie down. She took brandy, which she vomited immediately, and then hot cloths were applied locally, but gave no relief. The pain continued constant till the following Friday, and was of a dull, aching character, with occasional acute exacerbations. It was worst during the first two days. She vomited everything she took, even potash and milk, but she was able to leave her bed on Friday, and go about her work again. Her appetite was poor, though she did not vomit any more, and she did not feel herself.

About the 10th of April she appeared to menstruate. She noticed the discharge was foul-smelling, and only tinged with blood. Clots were present on the first day; on the second day the discharge was less, and during the next ten days continued at intervals. There was no dysmenorrhœa. The day after admission the discharge was more profuse, and was accompanied for part of the time with severe pain.

Previous Health.—Patient has had the usual illnesses of childhood, otherwise has always been healthy.

Diathesis.—Family history is good.

Social Condition and Habits.—She has always had a comfortable home, and has not had too hard work. She used to take a good deal of tea, strong, and without milk. She takes no alcohol.

Sexual History.

Menstruation.—Catamenia began at the age of 14; type, twenty-eight days; duration, four days; quantity small. Since second week in January 1901, there has been a period of amenorrhœa up to 2nd April, as already stated. There has been no menorrhagia; dysmenorrhœa occurring two days before the discharge of blood has been complained of. It was not so severe as to confine patient to bed.

Pregnancies.—One, seven years ago. Patient has had no miscarriages. She says her labour was not difficult; it was a full-time child, born in the Edinburgh Maternity Hospital. Puerperium was normal. Patient did not nurse her child, which lived for five months. Menstruation began again next month.

Physical Examination.

General Appearance.—Patient is a very anæmic-looking woman. The conjunctivæ, lips, and gums are all very pale. She is well-built. Muscularity is fair.

Mammæ.—Soft consistence. There is a well-marked primary areola, but no secondary one. Montgomery's tubercles are well seen. There is secretion on squeezing the breasts—clear colostrum.

Abdominal Inspection.—There is very marked prominence as a whole, especially to the right, and below the umbilicus. Striæ gravidarum are well seen. They are not recent.

Palpation.—There is marked resistance on palpation, but no undue tenderness. The abdomen feels distended, the resistance being greatest where the prominence is most marked. No thrill can be obtained.

Percussion.—The note is tympanitic all over the abdomen and also in the flanks.

Per vaginam.—*Orifice* rather constricted; *walls,* hot, moist, and smooth; *os,* patulous: there is a left-sided laceration. *Cervix* points down and back, but is pushed bodily forward by a swelling in the pouch of Douglas. It is soft in consistence.

Bi-Manual.—*Uterus* is slightly enlarged, firm in consistence, very tender, lying in normal position, and unfixed. *Ovaries* cannot be palpated. A sickening pain was felt when the examining fingers were in the region of the right ovary. *Fornices.*—Anterior short. Posterior and lateral well marked. Through the posterior fornix can be felt an irregular, hard swelling, with

well-defined limits. This swelling was tender to the touch, and was not movable. Through the right lateral fornix a swelling continuous with that in the pouch of Douglas can also be made out.

SYSTEMS.

Circulatory.—The second sound in the aortic and pulmonary areas is booming and occasionally accentuated, otherwise the sounds are normal.

Respiratory.—The breathing is vesicular; there are no accompaniments.

Digestive.—Stomach is not dilated. There is no vomiting at present. Appetite is poor. Diarrhœa has been present during the last three days up till to-day.

So far, the history of this condition.—On 26th April Dr Brewis, who was in charge during my absence, saw the case and curetted the uterus while the patient was under chloroform, bringing away shreds of apparent decidua. A swelling about the size of an orange was felt on bi-manual, in the pouch of Douglas. The sequel of the case will show how necessary this curetting was.

Diagnosis.—Right-sided tubal gestation with formation of tubal mole or abortion accompanied with intra-peritoneal hæmorrhage.

Remarks on diagnosis.—When I saw the patient she was markedly icteric, and I had little doubt there was a tubal gestation which had ruptured in part intra-peritoneally. The amenorrhœa, sudden pain, sickness, and pallor pointed to this. The jaundice was not hepatic, but due to absorption and alteration of blood pigment. Pain probably does not exist prior to rupture, and it may be that it is characteristic of the formation of a tubal mole or tubal abortion, and not of the usual peritoneal perforation of the tube. The tension in the pouch of Douglas might point to an extra-peritoneal effusion, but the patient was

too blanched for a mere limited, extra-peritoneal loss of blood. The tension, as found on operation, was really caused by an omental adhesion, limiting the blood space so far. One interesting point was the abdominal prominence. This was due to the intestines lying necessarily higher from the blood effusion below. An unfortunate complication was the discharge of fœtid shreds of decidua. The decidua may be discharged prior to rupture, after it, or after operation. It is a valuable aid in diagnosis; but, when fœtid, as in this case, may complicate operative treatment and lead to delay in operating, in the attempt to purify the tract.

What might the practitioner mistake this case for? He might think that the patient was having an ordinary abortion, but the pallor, the pelvic condition on physical examination, and the absence of the ordinary abortion structures (amnion, embryo, etc.) in what came away from the uterus would keep him right. He might also think of its being appendicitis, as the pain was specially right-sided, and ruptured tubal gestations have been operated on under this diagnosis. When irregular discharges of blood are present instead of amenorrhœa, the patient may mislead one by stating that she could not, on this account, be pregnant.

On 9th May I performed abdominal section. On opening the abdomen, abundance of dark unclotted blood welled up. I then ascertained that there was enlargement of the right tube at its fimbriated end, adherent omentum roofing over the brim in part, with extra-peritoneal effusion of blood from right to left. I next tied and cut through the omentum, and passing the fingers deeply, felt a large laceration of the peritoneum on the left side near the vaginal roof.

The condition looked very grave now, and it was quite possible that the patient might die on the table unless the hæmorrhage were speedily checked. I succeeded in doing this, by plugging the rupture into the broad ligament with gauze, and clamping the outer part of the broad ligament, so as to control the ovarian

FIG. 1.—Sections of Dilated Ostium Tube with Incomplete Tubal Abortion: it may be an Infundibular Case, however.

[*Face page* 214.

FIG. 2.—Uterus and Tube, with Intra-peritoneal Rupture of an Extra-uterine Gestation (Isthmic).
(From a preparation in Dr Harvey Littlejohn's possession.)

[*Face page* 214.

artery. The blood was sponged out of the pelvis, and with the patient in the Trendelenburg position I could survey the whole field. The right tube had what seemed a firm blood-clot projecting through its ostium abdominale. It was therefore a so-called incomplete abortion, and was adherent in part to the inner wall of the tube (Fig. 1). The rent in the peritoneal floor was large, ran up to the rectum, and burrowed beneath the peritoneum to the right and left. I could not roof it in with peritoneum after plugging with gauze, and thus had to open from the posterior fornix vaginæ into the pelvis, plug the extra-peritoneal cavity with gauze, passing the lower end into the vagina, allowing the rectum and omentum to cover this in above so far as possible. It was impossible, as I have already said, to close the gauze off from the peritoneum, from actual lack of material.

Submammary saline transfusion was administered, and the patient stimulated with strychnine hypodermically. I was glad to see her back in bed alive. Next day she had rallied, but on the third her pulse failed; she died apparently from cardiac failure.

I need not point out here the operative advantages of the Trendelenburg position, or of the pelvic tampon in such cases, but pass on to make a few remarks on what we know as to the mechanism of the production of tubal abortion.

In all probability, at least in the complete tubal abortion, a mole is first formed. In the formation of a mole we probably have, to begin with, blood effusion where the ovum is attached. Owing to the phagocytic action of the trophoblast opening maternal blood-vessels, and to the maternal portion of the placenta being defectively supplied with decidual cells, we are more apt to have extravasation of blood than in normal pregnancy. Probably following on this we get blood extravasation inside the chorion, between chorion and amnion according to Sutton, and thus the mole is fully formed.

We have now the following possibilities:—

If the mole remains attached in part and the ostium abdominale closed, blood effusion will give us hæmatosalpinx, with in extreme cases, rupture through the tube or peritoneum.

If the mole remain attached in part and the ostium abdominale patent, bleeding will lead to intra-peritoneal hæmatocele in some of its various forms. Should, however, the mole become detached completely, then partly by blood accumulation and muscular action of the tube, it may be extruded into the peritoneal cavity, typical complete tubal abortion. When incomplete, however, *i.e.*, arrested in the pavilion, is a similar explanation feasible? Has it the same explanation as in complete abortion, except that there is arrest in the pavilion?

In my second case such an explanation is difficult to accept. I do not see why we should get such complete adhesion at the widely dilated ostium. It seems to me more likely that this was primarily an infundibular variety, that it attached itself all round near the ostium, and thus blocking it, allowed blood extravasation to dissect its way below the peritoneum, with the subsequent ruptures I have already mentioned. On microscopic examination, villi and blood-clot were present in the sac wall; but there was little distortion of the villi, as one would have expected had they been separated slowly from their original attachment, and then reattached.

While, therefore, I accept at present the usual explanation of the formation of tubal moles and complete tubal abortion, and while I by no means deny a similar explanation for some incomplete cases, I think there is room to consider infundibular cases as simulating in some instances the incomplete form of tubal abortion.

MEETING VIII.—JULY 13, 1904.

Dr N. T. BREWIS, *President, in the Chair.*

This meeting was held in the Caledonian Station Hotel, Edinburgh, in conjunction with the Glasgow Obstetrical and Gynæcological Society.

THE USE AND ABUSE OF MIDWIFERY FORCEPS.

By J. A. C. KYNOCH, M.B., F.R.C.P.Ed., Professor of Obstetrics and Gynæcology, St Andrews University; Obstetric Physician, Dundee Royal Infirmary; Vice-President of the Edinburgh Obstetrical Society.

MY first duty is to thank the members of Council for the honour they have done me in inviting me to open this discussion on the Use and Abuse of the Midwifery Forceps. I am fully aware of my inability to do the justice to this subject which its importance deserves, but I trust you will grant to me the leniency due both to age and to youth, for I am here to-day representing the oldest University as well as the youngest centre of obstetrical teaching in Scotland.

No more opportune theme could have been chosen for discussion, threatened as we are by the nation's being deprived of 500 children per week, and at a time when the danger of a declining birth-rate is one of the problems of the day. Further, we have still to face the undesirable fact that serious evils exist, causing too high a death-rate from puerperal fever. The questions before us for discussion are: Whether is a frequent or a sparing use of the forceps desirable in midwifery practice, and what are the relative effects upon the fœtal and the maternal mortality?

On the one hand, we have it urged by some authorities that

the application of the forceps by the general practitioner is often too long delayed, resulting in a loss of fœtal life which might be prevented by the timely use of the instrument. On the other hand, equally trustworthy authorities have described the forceps as the bloodiest of all obstetric operations, and as being responsible for many injuries which subsequently fall into the hands of the gynæcologist for treatment. No matter what view one holds as to the necessary frequency of the operation, all will agree that the forceps deserve the eulogy of Baudelocque, who described it as "the most useful surgical instrument ever invented." One can imagine what midwifery practice would be without the forceps, when the practitioner could only resort to Parè's dreadful hooks, involving certain death of the child and indescribable injuries to the mother.

For two hundred years this instrument was the mystery of the medical world. Since the days of the Chamberlen monopoly it has gradually undergone several modifications, as represented by the pelvic curve, and change of lock, suggested by Smellie, and the addition of the shanks and shoulders by Sir James Simpson, terminating in the most important development by Tarnier, who introduced the principle of axis traction. From this sprang the further improved and modified instruments of Professor Simpson and Dr Milne Murray. I presume it is unnecessary for me at this time to contrast, for purposes of discussion, the ordinary double-curved forceps with those constructed to fulfil the function of axis traction. In favour of the latter one has only to mention the certainty with which one can direct traction in the axis of the brim without disturbing the ordinary mechanism of labour; less injurious compression upon the fœtal head, and greater ease and comfort to the operator. Those advantages far outweigh the more or less imaginary defect of greater complexity urged against it by those who still favour the old pattern of forceps. Professor Simpson, writing upon the advantages of axis-traction forceps, says:

"If a practitioner accustomed only to the use of the old forceps will use the axis-traction forceps in one or two difficult cases, he will find that it works with so much safety to the mother and child that he will ever after use it in every case. There is no case, high or low, with presentation and position normal or abnormal, demanding forceps delivery where the axis-traction forceps may not be applied. Since it came into use, the range of forceps application has been greatly widened, and the sphere of the competing operations, such as turning, embryotomy, and the induction of premature labour, has been correspondingly narrowed."

Indications for the Application of the Forceps.

It is almost impossible to lay down a hard-and-fast rule as to the indications and contra-indications for the forceps. Each case requires to be considered upon its own merits, and it must be to a great extent a matter for individual judgment. There can be little doubt that it is one of the truest maxims in midwifery that as long as the membranes are entire, and the liquor amnii present, no danger will accrue to mother or child by the continuation of labour—except, perhaps, by the occurrence of convulsions and hæmorrhage. Rare conditions, such as certain cases of eclampsia, may demand the application of the forceps before full dilatation of the cervix. Should, however, further experience with dilators, constructed upon the model of Bossi's instrument, prove that the cervix can be fully dilated without any serious laceration, then this indication for the application of the forceps will disappear. That the application of the forceps with the cervix undilated may be followed by disastrous results is fully proved by the not infrequent occurrence of vesico-cervico-vaginal fistulæ, the result of direct laceration, as distinguished from fistulæ the result of sloughing from delayed application of the forceps—now fortunately a vanishing lesion.

Statistics from the Rotunda Hospital further show that during Dr Johnstone's mastership, when the forceps were applied in about 75 per cent. of the cases, in many of which the cervix was undilated, the result was a doubling of the maternal mortality as compared with the more favourable results attained by his more conservative predecessors and immediate followers. It must, however, be admitted that Dr Johnstone's rate of infantile mortality was only 9 per cent. as contrasted with 53 per cent. under the mastership of Dr Clark —a result probably accounted for by the substitution of the forceps for craniotomy. Nowhere are Schiller's words more appropriate:

> "It is the curse of evil deeds
> That they give birth to further evils."

Here the "evil deed" is the untimely application of the forceps, the "further evils" being represented by deep cervical lacerations, parametritis, cicatrisations, and, as a consequence, one-child sterility.

By far the most frequent reason for the application of the forceps is the unsatisfactory advance of the head during the second stage of labour, as the result of feebleness of the pains or rigidity of the soft parts, especially in primiparous patients, or both combined. This is doubtless the class of case where the element of abuse is most likely to come in. Although it is perhaps undesirable that any time-limit should be taken as the basis for operative interference in this type of case, yet it seems to me that it is a tolerably reliable guide. If we take the average second stage in a multiparous patient as being one hour and a half, and in primiparous patients as two hours and a half, then, I think, it is desirable—although perhaps not absolutely necessary—to put on the forceps if the second stage lasts over two hours in a multiparous patient, and four hours in a primiparous patient. By following this rule we obey the mandate of Sir James Simpson: "You should only wait till you

see what Nature can do, not what she can endure," and the wise injunction of Boer that "everything is not to be taken away from Nature, neither is everything to be left to her." This would surely be a far safer time-limit in the interests of both mother and child, than waiting to fulfil Denman's rule, which was that the forceps should not be applied until the child's head had rested on the perineum for six hours—a rule which was scarcely mitigated by the additional injunction that no case was to be esteemed eligible for the forceps until the ear of the child could be distinctly felt.

This time-limit is not, however, accepted as a guide by some authorities. Winckel, for instance, teaches that weak pains never indicate the forceps, and that they should only be applied when distinct signs of danger to mother or child arise. He further expresses his belief that in general practice weak pains are more frequently diagnosed than they actually occur, and are thus employed as an indication for what he calls "an operation of convenience." Galabin, on the other hand, does not delay applying the forceps until the graver symptoms of protracted labour appear, and he thinks that by the modern practice of having recourse to forceps, without great reluctance, both maternal lives are saved and the lives of children who would have been stillborn from prolonged pressure. With regard to the abuse of the forceps in such cases, younger practitioners meet with the temptation to yield to the entreaties of the "uneasy gossips" and apply the forceps, because in the friend's opinion the strength of a perfectly healthy young woman in the early stages of a normal labour is rapidly becoming exhausted. Perhaps Pajot's principle, which dominates all midwifery, would fulfil the requirements of such a case:

"The duty of the accoucheur is patience. One should not interfere without a decided indication. But as soon as ever that occasion is presented it must be attended to without delay, and it must never be forgotten that in midwifery methods of inter-

ference which will save two beings are at the right time easy, but become in a few hours dangerous, futile, and impossible."

In minor degrees of contracted pelvis of the justo-minor type the advantages of the forceps are generally recognised. It is not my intention to do more than touch upon the much disputed question of the relative advantages of forceps and version, as a means of extraction in minor degrees of flat pelvis, permitting delivery of a living child by either method. In primiparous cases I am thoroughly convinced that with properly constructed axis-traction forceps delivery by this means is safest in the interests of the child, and in no way increases danger to the mother. In multiparous patients I believe that version has yet a field of usefulness. Many stillborn children, and many lacerations of the maternal passages are due to the too early application of the forceps before the head has had time to mould into what Litzman calls "the most favourable position of the head," which is well-marked Naegele's obliquity, the head being ready to enter the pelvic brim. Statistics, however, clearly show that with a timely and skilful application of the axis-traction forceps the infantile mortality is distinctly less than in cases extracted by version, and is not accompanied by greater risks to the mother, as some German obstetricians would lead us to believe.

In malpositions of the head, as represented by occipito-posterior cases, we know that with the aid of time, in the majority of cases the occiput rotates to the front without assistance. When within a reasonable time this does not take place, there can be no doubt, I think, that the application of the axis-traction forceps, provided the passages are in a fit state, by favouring descent and flexion of the head, promotes anterior rotation more surely than manual attempts at reposition, on account of the uncertainty of the permanency of the latter method. The successful use of the forceps in such cases depends on their efficiency. Although it gave Smellie "great joy" when he

discovered that he could rotate the head with the ordinary forceps, yet we know that this could only take place at the risk of injuring the child's head and the maternal soft parts. The superiority of the axis-traction forceps in those cases was clearly pointed out by Sir Halliday Croom many years ago. More recently the late Dr Milne Murray perfected the instrument by flattening the pelvic curve which insures a firm grasp of the head, increases flexion, and at the same time does not interfere with normal rotation. Although in persistent occipito-posterior cases labour is prolonged, and there is a greater tendency to perineal rupture, yet my belief is that such cases terminate spontaneously more frequently than is generally anticipated. This is corroborated by the experience of Varnier, who found that 30 out of 35 cases terminated within a reasonable time without any instrumental assistance.

In malpresentations of the head as represented by face cases, expectancy is the best treatment to adopt, as the majority of those cases terminate naturally. Should, however, anterior rotation of the chin be unduly delayed, the forceps are quite legitimate. In cases of persistent mento-posterior where immediate extraction is indicated, the forceps have in the majority of cases to give place to some other means of extraction. With regard to brow presentations, the forceps are only of use when the head is impacted in the pelvis, or when it is too late to convert it into a more favourable position. The application of the forceps to the aftercoming head as recommended by Smellie should, I think, be reserved for cases where jaw traction is impossible from the mouth being inaccessible, or where the occiput is behind and the chin directed to the pubis. Further, as they are generally applied after failure of manual attempts at extraction, the chances of delivering a living child must be greatly lessened by such previous manipulations.

In cases of prolapse of the cord, ordinary methods of reposition failing, the best chances for the child, in multiparous

patients, lie in rapid delivery with the forceps. In primiparous cases, on the other hand, where the condition of the soft parts does not permit of delivery rapidly enough to save the child, without the risk of tearing the maternal tissues, I believe that version is preferable, as this enables the breech to fill up the place previously occupied by the loop of cord.

In marginal placenta prævia, the os being fairly dilated, but the pains not strong enough to deliver the child quickly, the forceps should be applied chiefly in the interests of the child.

Methods of Application.

With regard to the technique of the operation, time does not permit me to enlarge upon that point beyond referring to the mode of grasping the head. There can be no doubt that previous to rotation of the occiput the cephalic application of the blades over the biparietal diameter of the child's head should always be attempted, although it is more difficult to do than merely introducing them in the transverse diameter of the pelvis without any reference to the child's head. By so doing there is less chance of the forceps slipping and thereby inflicting injuries to the mother and to the child. As to the mode of traction, our motto must be "*Non vi sed arte.*"

Frequency of Application and Mortality.

When we come to consider the question of the frequency of the forceps operation, we find the percentage of cases much smaller in hospital than in general practice. Those who urge a limited use of the forceps in private practice quote in support of their plea the present tendency to the restricted use in Continental hospitals. Taking the practice of ten Continental

maternities, I find that the average frequency of forceps cases is 3·6 per cent.:

	Per cent.
Basle (1887-93)	5·33
Bonne (1885-95)	4·39
Dresden (1889-94)	2·56
Greiswald (1887-96)	6·00
Halle (1887-93)	4·84
Marburg (1885-97)	2·50
Munich (1884-90)	2·60
Prague (1891-94)	3·60
Paris Maternité (1896-99)	6·00
Wurzburg (1889-95)	2·36
Average	3·60

This represents a rate of forceps cases where the conditions and indications are strictly limited and definite. The cervix must be fully dilated, the membranes ruptured, and the head already in the pelvis. The forceps are not applied until danger arises to mother and to child or to both. If we compare those figures with the statistics of maternity hospitals in our own country, we find that our percentage of instrumental cases is slightly higher. This slightly increased rate is not accounted for by the indications being any less strict, or definite, but from the fact that cases of the high operation are much more frequent in this country, the axis-traction forceps not having yet received universal favour in German Clinics, where version is employed for cases which we would terminate with forceps. Another reason for our higher percentage is that our lying-in hospitals are smaller, and consequently a greater proportion of the cases admitted require operative treatment. This is apparent when we compare the percentage of indoor with outdoor cases. Thus, for example, in the Edinburgh Maternity Hospital, of 300 indoor cases 32 were instrumental, equal to 10 per cent., whilst in the outdoor practice in 506 cases the forceps were applied 23 times, equal to 4·3 per cent. In Glasgow, of 482 indoor cases there

were 18 per cent. of forceps cases, equal to 1 in 5, whilst of 1697 outdoor cases the forceps were applied in 6 per cent. of the cases, or 1 in 16. In the Dundee Maternity Hospital, of 563 indoor cases there were 42 forceps deliveries equal to about 7 per cent., whilst in the outdoor department of 520 cases there were 29 forceps deliveries, or a little over 5 per cent. In Manchester there was 9 per cent. as contrasted with about 1 per cent. in the outdoor practice. The Rotunda report for last year gives 3·5 per cent. for the indoor and 1·5 for the outdoor department.

The maternal mortality in those hospital reports may be taken as *nil*, there being no case where the maternal death could in any way be attributed to the application of the forceps. When we come to consider the effects of the forceps operation on the infantile mortality, we are confronted with the difficulty that in many reports upon this point no reference is made to the important factor as to whether or not the child was alive when the forceps were applied. After deducting such a possible source of error, I find, from the following reports at my disposal, that the average infantile death-rate where the forceps *might* be responsible for the child's death comes out slightly over 6 per cent.

	Forceps Cases.	Children Dead before Application.	Deaths possibly due to Forceps.
		Per cent.	Per cent.
Dresden	232	21	5·6
Halle.	102	19	12·0
Wurzburg . . .	66	27	4·0
Prague	106	21	3·7
			6·0

Satisfactory in every way as those hospital results are, the question of morbidity has to be considered. The difficulty in

estimating the exact morbidity lies in judging to what extent the forceps, *per se*, were responsible for the lacerations of the soft parts. Many of the less important injuries are wrongly attributed to the forceps, because such tears might as surely have occurred in non-instrumental cases. From the Dresden Klinik, for instance, Münchmeyer reports 85 per cent. of lacerations which he attributes to the forceps even scientifically applied. Schmidt, of Basle, found 84 per cent. of lacerations in the vaginal and perineal tissues in 132 forceps operations. Few will admit, I think, that the forceps were necessarily responsible for the lesser injuries included in those figures, or that those writers are justified from such results in supporting the opinion that has been expressed by Winckel that "even in the hands of an experienced operator the forceps is an instrument by no means devoid of danger."

When we turn now to private practice we find that even in Germany, where the strictly limited application of the forceps in hospital practice has been quoted as an example of what should be followed in our everyday practice, it is interesting to note that even there the indications become extended, so that the forceps are much more frequently employed in private practice than in the hospitals. As the Germans put it, the "*Schulen indicationen*" as practised in hospital need not necessarily be strictly adhered to in private practice. Now, although I know that it has been said, and perhaps truly, that statistics are sometimes misleading, yet I should like to quote from a paper which appeared in a recent number of the *Zeitschrift für Geburtshilfe und Gynæcologie*. In that paper Bockelmann, of Berlin, states that of 800 cases attended by him in private during a period of fifteen years the forceps were applied in 335 cases, equal to 40 per cent. They were divided as follows: 47 at the brim; 122 in the pelvis; 166 at the outlet. Of the total, 283 were primiparæ, 94 multiparæ. There were three maternal deaths, the cause in each case being eclampsia, and thus in no way

connected with the forceps operation. Such results are quite equal to the best hospital return.

Of the children 319 were alive, and 16 died during the forceps delivery, equal to about 4·7 per cent.; of the 16, however, 6 were known to be dead before the forceps were applied, 3 were doubtful, leaving only 7 of the total where the forceps could in any way be responsible for the child's death. It is further of interest to note that of 61 cases in elderly primiparæ Bockelmann, with the early application of the forceps, had an infantile mortality of 3·3 per cent., while Münchmeyer, dealing with the same class of patients in hospital, where the time-limit in the second stage of labour was more prolonged, had an infantile mortality of 30·3 per cent.

Recently Dr Dewar contributed a paper on this subject to the Edinburgh Obstetrical Society. His conclusions may be taken as a fairly good average of careful midwifery in everyday practice. He contrasted his early experience of 700 cases with 300 cases at a later date. In the former group he applied the forceps in 11 per cent. of the cases. There were no maternal deaths. Of the children 20 died, and of those only 6 were delivered with forceps, giving an infantile mortality of 2·8 per cent. Of his second series—and with a larger experience—he applied the forceps in 35 per cent. of the cases. There was one maternal death from a cause quite unconnected with the obstetric operation, and an infantile mortality of only 1·6 per cent. Those figures of Bockelmann and Dewar show a gain in the infantile results as a consequence of a more frequent application of the forceps as contrasted with the results achieved by their more limited use in hospital practice. But we must take into consideration the fact that hospital cases are usually more difficult, and this would account for the higher infantile mortality. With regard to morbidity their results clearly show that severe perineal tears were more frequent in unaided cases,

and that the convalescence after forceps cases compared favourably with non-instrumental deliveries.

It has not yet been proved that by a frequent application of the forceps a very large saving of fœtal life is obtained. But the figures at our disposal show at least a slight saving, with equally good results for the mother. This being so, I think we are justified in maintaining that in the hands of a skilful operator, the condition being satisfactory for the application of the forceps, a moderately frequent use of the instrument is to be recommended. By so doing we shorten the patient's suffering, without increasing any risk to the maternal or to the fœtal life.

Granted that the results of forceps deliveries in the hands of careful practitioners compare favourably with the results in lying-in hospitals where their use is much more restricted, how does it arise that the consequences of pelvic lesions following upon instrumental delivery form the etiological factor in many gynæcological cases? There can, I think, be but one explanation, namely, too little knowledge in the technique of the application of the forceps, and over-confidence in the safety of the abundant use of antiseptics. No one, of course, undervalues the enormous benefits to obstetric practice since the introduction of antiseptics, but the patient's safety depends not only upon such precautions but also upon how the instrument is used, for that which is "best administered is best." Until such time as clinical midwifery becomes a compulsory part of medical education, ranking in importance with clinical surgery and clinical medicine, we cannot but expect that many of the younger practitioners will meet with difficulties in the manipulation of the forceps. Till then we must bear the reproach of German obstetricians who have criticised our midwifery training as being "*Nur theoretisch.*" Most important as it is for our students to be thoroughly equipped in the various branches of medicine and surgery, yet it has perhaps been said with some truth that our students learn surgery, which they will never practise and

practise midwifery which they have never learned. The abuse of the forceps will to a great extent disappear when our students are able to obtain a sound practical training in obstetrics. As we cannot regulate the time when midwifery cases occur, our students, in order to obtain the full advantage of the experience offered by our maternity hospitals, must reside in or near that institution. Herein lies the superiority of the method in Germany, where a few weeks' residence in a maternity is compulsory before the student presents himself for examination. It may, of course, be argued that he may not in the course of a few weeks' residence apply or even see the forceps applied, and he may not acquire that dexterity possessed by William Hunter, who boasted that "he could turn with one hand and eat bread and cheese with the other." But the student would at least learn such important details as the position of the child's head and methods of pelvimetry. This knowledge would at any rate prevent one frequent abuse of the forceps—namely, that cases of contracted pelvis would be diagnosed before their application, and not for the first time after futile attempts at extraction. Further, he would be impressed with the responsibility he incurs in assuming the care of parturient women, and he would recognise that his attendance at the maternity hospital was not merely to be regarded as a place where he can "look in to see what was going on," but that attendance at it would be one of the greatest advantages for his future success as an obstetrician. I am sure I echo the sentiment of all those interested in the progress of obstetric teaching in Scotland, when I congratulate our Edinburgh colleagues in having almost realised this ideal state of obstetric teaching by the acquisition of a residency in connection with the Simpson Memorial Maternity Hospital. We hope that directors and managers of lying-in hospitals throughout the country may follow this example, and that they will be convinced that whatever increases the teaching efficiency of a hospital, be it lying-in or general, increases at the same

time the benefits to the patients. It is but fitting that this advance in the facilities for teaching obstetrics in Edinburgh should be associated with the name of Dr Milne Murray, who in the short years allotted to him did so much not only to maintain but to enhance the reputation of the Edinburgh School of Obstetrics.

Dr Dewar said the subject was one about which there was, no doubt, a considerable difference of opinion—difference as to what constituted a right, proper, and necessary use of instruments, and what was an improper and unnecessary abuse of them. He intended limiting his remarks to one or two of the many conditions which led him to use forceps—conditions which, he was afraid, some might construe as leading to an abuse. He might confess at once that he sometimes used instruments when his own judgment would have led him to leave things to Nature, but the existing conditions were, at times, such that he was often obliged to act against his own inclinations. But what of that if by the skilful use of instruments he could deliver a woman, and shorten labour, even by one hour, without doing injury to the mother or the child? A good deal had been said about the too frequent use of instruments at one time and another. We knew that our teachers must teach the great guiding principles of the treatment of labour to students, and warn them against the too frequent use of instruments. We also knew that it would be very wrong for a young practitioner to have a percentage of 20, 30, or 40, of instrumental labours. But it was not wrong, and could not be wrong, for a practitioner of some experience—one who had acquired the proper knack of the axis-traction forceps and the "tactus eruditus"—to run up to such a percentage in ordinary practice.

On looking over his own statistics, he found that the greater number of these cases of "abuse" occurred in the "low" operation. He freely admitted that a very large number of these

cases would have terminated favourably, if left to themselves. However, one often had to deal with a fractious, neurotic, and ill-controlled woman—a primipara—one who had been told by her friends and neighbours to demand chloroform from the doctor, and thereby suffer no pains. In fact, it was becoming quite the custom with some of his patients to ask, when making their engagements, whether they would get chloroform or not. He was, therefore, met on the very threshold of the labour with cries for chloroform—the patient being utterly regardless of everything save the all-consuming desire to be relieved of her pains. He could, of course, do one of several things. He could examine the patient, and if she were a calm and sensible woman, tell her the state of matters, and leave, go about his business, and come back again; or he could, if not pressed for time, sit down and wait—the practitioner's presence being somewhat of a moral support to the woman. He could place the patient partially under chloroform, and keep her so until the case was completed, or he could take the patient into his confidence, and explain to her the condition of matters, and as soon as the os was sufficiently dilated, place her deeply under chloroform and deliver her with forceps. Of these possibilities he preferred a combination of the first and last, as he generally found that a frank and kindly explanation to the patient, with a promise of chloroform when the parts were ready, often enabled a woman to control herself fairly well during the early stages of labour, and thus he was enabled to deliver the woman very much to her satisfaction and well-being, and to his own credit. Mention had been made already of cases which led one to use forceps. There were these cases of inertia—cases which went on fairly well for a time, and then the pains began to fade away. What was one to do? In his student days he was taught to use ergot. But for weighty reasons he had given up the use of that drug entirely. In these cases of inertia, therefore, there was nothing left but chloroform and the forceps. Again, there were cases in which

the position was normal, occurring in an apparently normal pelvis, but the head got fixed somewhere in the lower third of the pelvic axis, and no expulsive effort on the part of the mother was sufficient to dislodge the head and push the child on. The case became a lingering one, and there was nothing else left but chloroform and the forceps. Then it might be said with regard to *occipito-posterior deliveries* that all such cases should be rectified at an early stage of the labour. In his own experience, he might say that he had not always been able to bring this about. It might be due to his want of skill, yet he managed, along with many others, to deliver these occipito-posterior cases without any danger to the mother or child. In his own practice—and here he referred to cases which he had attended personally—he had not yet had to repair the cervix or perineum after forceps, though he had had the usual share of split cervices and ruptured perineums in unaided cases. He thought this was fairly conclusive evidence that a liberal and judicious use of instruments need not be felt to be a source of trouble—at any rate no worse than in unaided cases. As regards the "high" operation, it would be admitted that whenever the head became impacted at the brim, from whatever cause, there was nothing else for it but forceps, or some of the other methods with which they were all familiar, though perhaps not practically. He himself had been able to deliver all his cases either with forceps or by version, with the exception of two: one, a case of hydrocephalus which was easily delivered after the fluid had been drawn off by a curved trocar and canula; the other, a case of an anencephalic child in a breech presentation, with an enormous ascites. The same trocar was used, and nearly a pailful of fluid drawn off, after which an easy delivery was accomplished. He thought, therefore, that the use of forceps under these conditions —conditions which certainly did lead to a pretty liberal use of the instruments—must be considered perfectly justifiable, and should not be looked upon in any way as an abuse.

Dr James Ritchie said that he entirely agreed with Professor Kynoch in relation to the great advantage of a residence in connection with the teaching of midwifery, and he hoped that the residence which had recently been added to the Edinburgh School might prove of great service. His first teacher in midwifery—the late Dr Matthews Duncan—taught that meddlesome midwifery was bad. His experience had confirmed him in that opinion. Although he had very little morbidity in cases in which he had used forceps (indeed some of the cases which had given most trouble during the puerperium were those in which the child had been born before his arrival, and the delivery had been completely spontaneous); nevertheless, he was strongly of opinion that forceps should not be used unless necessity arose. They should not be used to save the time of the practitioner, nor in response to the demand of the patient for immediate relief. He found it a good rule to follow, that if steady, although it might be slow, progress was being made, and if the strength of the patient was well maintained, there should not be interference. This rule applied specially to *primiparæ*. Of course, the obstetrician would be careful not to be misled by what was only an appearance of progress. One must be prepared to interfere at once in cases of emergency, but this was not the class of cases which was at present being considered. He agreed with Professor Kynoch that a large proportion of occipito-posterior vertex and also face cases terminated without undue delay if not interfered with. He did not believe in hard-and-fast rules as to time-limit. In multiparæ with the first stage completed a delay of two hours was too long before giving assistance, but in certain primiparæ four hours might be considerably exceeded for the second stage, without any disadvantage to mother or child. Exhaustion of the patient must be carefully guarded against. In deciding the proper time to interfere, the experience and judgment of the obstetrician was of importance. He was of opinion that the morbidity of the

puerperium was not increased, but lessened by the timely use of forceps. Although one ordinarily waited for the complete dilatation of the os before using forceps, if in cases of contracted brim of the pelvis the os was dilatable and some time had elapsed without progress, it was useless to wait for complete dilatation. Occasionally interference was necessary in the interests of the child. Professor Kynoch had said that as long as the membranes were unruptured there was no danger to mother or child. He did not accept that opinion in relation to the mother, but agreed with it as regards the child. Occasionally when there had been premature rupture of the membranes, it was necessary for the safety of the child to apply forceps sooner than one would otherwise feel inclined to do as far as the mother's condition was concerned. In every case they had to consider the interests of both mother and child, and almost invariably the mother's life must be held to be more important. When the life of the child was in danger, interference must be had recourse to only if it would not endanger the mother. Professor Kynoch referred to statistics of hospital practice in comparison with private practice. It was difficult to form a fair comparison. Although hospital statistics might be made less favourable because a considerable proportion of difficult cases were sent to maternity hospitals, on the other hand, parturition was a much less difficult and less serious process among the lower than among the higher classes.

Dr Macvie disliked the expression "abuse of the forceps." It conveyed to his mind more than want of skill. When a person was said to abuse any means, the meaning was that it was used unnecessarily, recklessly, and without regard to consequences. To speak of the "abuse" of the forceps in this sense was to impute a moral delinquency which he, for himself, declined to admit himself guilty of. Personally he used the forceps whenever the opportunity presented. He was no longer tied down by any rules of his college days, but acted on the indications presented. He was not contented to wait on and allow Nature to

finish an occipito-posterior position or a "face" presentation in all cases. For example, in a *justo minor* pelvis a large head presenting in the first position might be a very difficult case and tax severely the unaided natural efforts; but with the same pelvis and the same head in occipito-posterior position, or with the face presenting, labour would be much more difficult and require assistance. He was very much in sympathy with what fell from Professor Kynoch. It would be unwise to allow an expression of opinion deprecating the frequency with which the forceps were used to go from the meeting. Such an opinion although acted upon would not improve matters. The extra number of cases of unaided labours would be of the simpler and easier kind in which injuries did not occur. That would leave the same number of injuries to a smaller number of forceps cases, and furnish a still stronger case against the instrument; at the same time, from its less frequent use, the practitioner would become rusty and less capable of using it skilfully. Whatever expression of opinion went from the meeting it should not be against the liberty of the practitioner to use his own judgment. He was opposed to the laying down of rules drawn from averages. The average case was like the typical specimens in animal and plant life—it never was seen. All cases were more or less atypical and should be treated on their own indications. The last word in practice was not routine but skill. An authority had been quoted to the effect that the forceps should not be used unless danger threatened. He declined to allow his patient to approach the verge of danger. Thirty years' experience had left the impression that the convalescence from a forceps case was more rapid than from a prolonged unaided labour. That there was something wanting in the teaching of practical obstetrics was undoubted. The student ought to have opportunities of witnessing the management of forceps cases. He did not admit that the wishes of the patient was an excuse for using or not using either the forceps or chloroform. When the

patient began to instruct the doctor the proper relations were reversed.

Dr Hamilton, Hawick, said he had attended about 5000 cases in general practice, and had used the forceps in a large number of cases. He had never used the axis-traction forceps, and found he could deliver easily with Simpson's old forceps, when other practitioners had failed with the axis traction. Many practitioners came out of college without the knowledge of how to use the forceps, and for this they were not to blame, but the teachers of Edinburgh, Glasgow, etc. The worst cases of ruptured perineum which he had met with were cases where forceps were not used at all, and from his experience, he thought rupture was more apt to occur without than with properly used forceps. He did not know that any man could tell another when was the right time to apply the forceps, but after large practice the accoucheur seemed to know just when the right time was. He believed that in general practice they did not go in sufficiently for antiseptic midwifery—not that it was always possible—but if they tried to have it, there would be much less danger with the forceps.

Dr Kelly, Glasgow, agreed in the main with Professor Kynoch. In his gynæcological practice he had seen a great many cases of ruptured perineum, and he agreed with the speaker who said that these ruptures were more common in cases where forceps had not been used than in other cases. The use of the forceps when the head was pressing on the perineum, with chloroform, was a great means of preventing perineal laceration.

Dr Somerville said he appreciated so highly Professor Kynoch's treatment of the subject he had brought before them, that it seemed to him that any discussion of his paper was unnecessary. If they agreed with what they had heard there was little use in saying it over again; and if they differed from Professor Kynoch's view they were almost sure to be wrong. He was pleased to hear that his old friend Dr Dewar had come to the

same conclusion as he (Dr Somerville), that in their more frequent use of the forceps, their cases instead of having worse recoveries had better recoveries. The more they had used forceps, the more favourable had been their results. He did not think he would say any more, except that he was very glad Professor Kynoch had not treated them to a disquisition on the various kinds of forceps. He believed that the kinds of forceps were innumerable, and in regard to many of them it did not matter very much which they used. The greatest thing in every surgical instrument was the man behind it. There was just one thing in which he was not quite sure he agreed with Professor Kynoch, as to the value he attributed to the axis-traction forceps. He was not quite sure that Dr Hamilton and himself were not doing the best thing, when they stuck to the old Simpson forceps, which he thought were quite as good as any others used.

Dr Reid said his experience tended in exactly the reverse direction to that of some of the speakers. As he went on in practice, he came to use forceps less frequently, and he could not explain that in any other way than by saying that in proportion to using chloroform freely, he used forceps less freely. He believed that a great many cases in which forceps were used could be treated quite as safely—he ventured to say more safely —by the free use of chloroform. As regards the mischief resulting from the use of forceps he had no doubt, and he thought nobody who had had a large hospital experience in gynæcological cases had any doubt that they saw the worst results. It was true, however, in a great many cases that forceps were applied long before any necessity existed. They should be very careful in turning a physiological process into one in which they acted as if it were pathological. He need hardly say he believed strongly in the use of the forceps, but he would certainly limit their use to those cases where it was clear that the natural efforts of the woman could not safely end the labour.

Dr Spence said he had treated between 3000 and 4000 cases,

and had had to use forceps very frequently, and he had never had occasion to regret using them. In the few maternal deaths he had had, he did not think there was one case that he could attribute to the use of forceps. He had only seen one serious perineum rupture due to the use of forceps. With regard to the kind of forceps that should be used, he thought Milne Murray's came as near to perfection as any. They were even before Simpson's forceps in facility of application. They were a great convenience to the practitioner, more particularly if the latter had not a single soul to aid him. They had greatly improved the conditions of the use of forceps. He believed strongly in the increased use of forceps, not unnecessarily, but where the cervix was dilated or dilatable.

Dr A. W. Russell, Glasgow, said that as the discussion approached its close it became evident that three points received special emphasis. The first was the necessity for very careful asepsis. He did not think that septicæmia would disappear until every practitioner realised that a confinement required as much precaution as a surgical operation. Another very important point was the proper diagnosis of the case by skilful measurement of the pelvis and of the child that had to pass through it. Perhaps in Glasgow they saw more trouble arising from the neglect of this than those in Edinburgh did. It was a painful experience to be called to assist in a difficult case where the conjugate was 3½ inches and the child was large, weighing 10½ lbs., and to find that two practitioners had been working with the case at intervals during the whole day, and had been pulling so hard with the forceps that they said they had to go home to change their underwear, when the mere measurement of the conjugate and the palpation of the abdomen would have explained their difficulty and indicated the line of treatment. A third important point was the skilful use of the forceps, and he included under that head the selection of the right kind of forceps. Though he was brought up in the older

school, he had satisfied himself that the modern development of the axis-traction forceps was the most scientific as well as the most generally useful instrument. It was one thing to apply the forceps, and even this required skill and intelligent consideration of its relation to the child's head as well as the mother's pelvis, but it was quite another thing to use the forceps properly after it was applied and the continuous pulling that was often practised was certainly not an imitation of Nature's methods.

Professor Kynoch, in replying to the discussion, said he was glad Dr Inglis agreed with him on the importance of estimating the size of the pelvis before applying the forceps. He agreed with Dr Ritchie that the question of the practitioner's time or convenience should not be taken into account, and also with what he said regarding the application of the forceps before full dilatation of the cervix in certain cases of contracted pelvis. He had not seen any harm resulting from gentle jaw traction on the aftercoming head as mentioned by Professor Cameron. With regard to the merits of the different types of forceps, he was certain that those who still adhered to the old pattern of instrument would find the axis-traction forceps much superior, especially for difficult cases.

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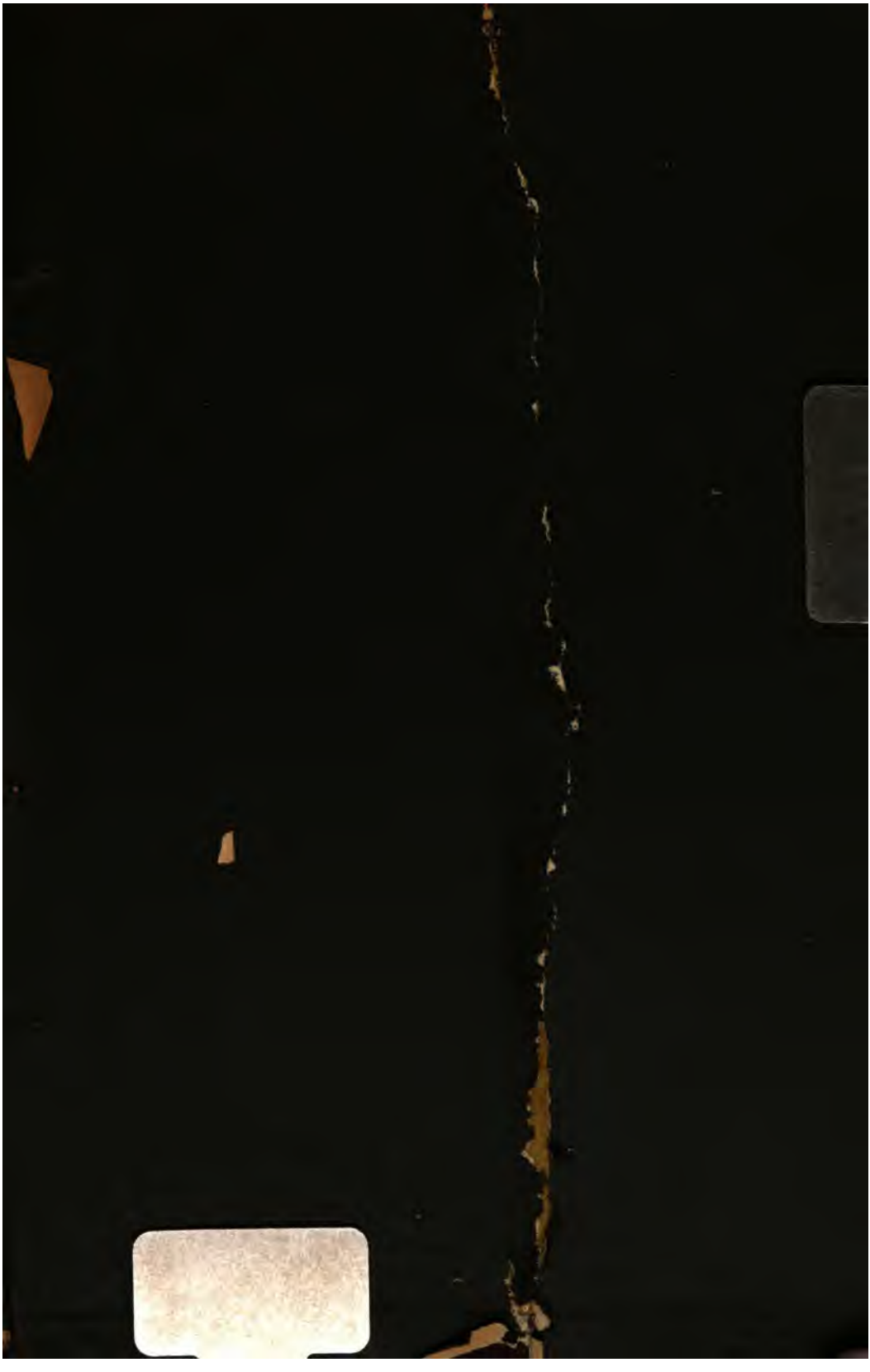
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